

THE CANADIAN Horticulturist.

FROM
L. WOOLVERTON,
GRIMSBY, ONT.

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PROF. WILLIAM SAUNDERS, F.R.C.S.
Director of Experimental Farms of Ontario.

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INDEX TO VOLUME XIII.

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The Canadian Horticulturist.

A.

PAGE.

Abraham's Oak 60
Alkaline Wash 187
Arranging Flowers in Bouquets 335
Asparagus Bed 187
Ægeria Tipuliformis 133
Apple Crop 225
 Composition of 302
 Crop in Nova Scotia 48
 Culture in Nova Scotia 127, 132
 Flowering 28
 Growing Pays 148
 Harvest 324
 Leaves, Composition of 132
 Orchard, a Barren 246
 Scab 122, 165, 205
 Worms 63
Apples Chopped 200
 Exports and Imports 316
 For Export 105, 131, 138
 Early 336
 From Denmark 185
 Hardy for the North 353
 Winter 311
Apples, New Varieties—
 Antonovka 175, 216
 Aport 216
 Beresinkoe 333
 Bietigheimer 239, 301
 Blushed Calville 216
 Borovinka 216
 Cellini 175
 Gibson 9, 43
 Golden White 157, 332
 Haliburton 330
 Hibernal 216
 La Rue 8, 43
 Leeds 9
 Longfield 207, 216, 301
 Magog Red Streak 174
 McMahon's White 174, 216
 McLean 9, 44
 McIntosh Red 24
 Ontario 114, 351
 Synap 17, 49
 Switzer 216
 Scott's Winter 156, 174, 187, 216
 Titovka 175
 Winter St. Lawrence 24
 Yellow Transparent 121, 132, 216, 272, 301
 Zolotoreff 174
Apples, Seedlings—
 Beall's 352
 Cameron 300
 Green Fameuse 330
 Henderson's 332
 Higginson's 329
 Ireton's 329
 Johnson's 351
 McMillan's 352
 Renaud's 331
 Weeping 330
 Wilson's 351

B.

Baldwin, Hardiness of 175
Barn Manure 41
Barry, Patrick 294
Bartlett Pear 62
Basket Holder 192
Black Cherry 269
Black Currant, a White 274
Black Currant Borer 133
Black Knot 304
Bees and Fruit 111, 141
Bee Yards in Orchards 168
Begonia Tuberous 119
Ben Davis 46, 149
Berry Bearing Plants for Decoration 355
Big Berry Crop, To Get 225
Big Trees 30
Birds, Insectivorous 228
Blight in Pears 209, 308
Bohemian Queen Cherry 104
Bones as a Fertilizer 90
Bordeaux Mixture 116
Brown Rot of Grapes 303
Bubach Strawberry 65, 111, 153, 240, 338
Budding Stone Fruits 218
Burdock Cutters 328
Bushel-Boxes for Potatoes 7

C.

Cabbage Aphis 358
Cabbages, Keeping 29, 359
Calla 23, 94, 181
Canada Orleans 93
Canadian Apples in Iowa 24
Can Plants be Acclimatized? 21
Catalogue, Ontario Fruit 4
Catalpa Speciosa 30
Carbolic Acid Emulsion 167

PAGE.

Carbolized Plaster for Curculio..... 272
Care of Fruit..... 48
Care of Shrubs and Trees 93
Carrying Fruit 101
Celery, Blanching and Keeping 265
Cellini 175
Central Experimental Farm 258
Central Farmers' Institute..... 92
Cherry Grafting 157
Cherry, New Varieties—
Bohemian Queen 104
A September..... 309
Cherries for Home Use 94
Chestnut Cultivation 302
Chestnut, Sweet 358
Clematis in Ontario..... 86, 180
Cinerarias 187
Chinese Sacred Lily..... 58
Crimean Apple, Synap 49
Chopped Apples..... 200, 276
Cloud's Seedling 305
Coal Ashes..... 149
Cobæa Scandens 213
Commercial Fertilizers 41
Concord Grape..... 336
Copper, Sulphate, against Fungi 51
Croil, John..... 221
Cucumber Beetle 217
Curculio, Spraying for 361
Currants 193, 271
Currants, Pruning 305
Customs' Tariff..... 185
Cuttings 313
Cut Worms..... 125
Chrysanthemum Centenary 25
Chrystallized Fruit 208

D.

Damping off 187
Danais Archippus..... 261
Daisy as a Window Plant 356
Dempsey's Pear 60
Dictionary of Gardening..... 93
Digitalis 18
Dominion Convention of Fruit Growers
61, 75, 100, 131
Dryden, Mr. John..... 321

E.

Evaporated Apples, Zinc in 236
Evaporating Apples..... 70
Evaporators 303
Evening Grosbeak 135
Experimental Grounds of THE CANADIAN HORTICULTURIST 35
Erie Blackberry 337
Estimate of Apples..... 46, 147, 172, 173
Exports of Fruit 32

F.

Fall Planting 295, 296
Fall Set Fruits 325
Farmstead Bawn 27
Fence Posts 3
Flemish Beauty Pear 188

PAGE.

Fertilizers for Orchard and Garden..40,
71, 156, 211, 314
Filberts, Growing..... 336
Forcing House, A Handy..... 323
Forest Trees, Planting 305
Four-striped Plant Bug 247
Foxglove 18, 118
Fruit as Food..... 233
Medicine..... 171
Fruit Garden..... 77
Juices 264
Picking Stand 263
Possibilities 146
Prospects..... 169, 196, 267, 278
Storing for Winter 348
Fruit Farming 105
Farms in England 217
Fruit Growing, Success in..... 342
In Ireland 311
In West Nissouri..... 308
Fruits affected by Curculio 217
In Manitoba..... 257, 285
Fruit Statistics of the Dominion..... 316
In Quebec 264
In Middlesex..... 275

G.

Galvanized Wire Trays 45
Garden and Work 10
Garden, Money in the..... 290
Grading Fruit 209
Grafting 143, 155, 157, 165
Grafting Stone Fruits..... 165
Grape Fruit 242
Juice 327
Pruning 37, 38, 66
Grapes, Choice List..... 216
Grafting 145
Girdling 90, 198, 248
In Muskoka 344
Keeping 326
Packing and Marketing 291, 303
Newest Varieties 100
Seedling 329
Varieties for Market 79
Winter Protection 53
Grape Vine Excrescences 246
Gravenstein, Yield of 122
Geraniums, Keeping 29
Wintering 63
Seedling 29
Greenhouse for an Amateur 26
Gibb, Charles..... 122, 159
Gibson Apple 9, 43
Gift Packages 128
Girdling the Grape 90, 198
Grimsby Fruit Section 283, 319
Gooseberries Dropping 93, 157
Gooseberries, New Varieties—
Pearl 29, 271
Shorts 275
Conn 271
Gooseberries, Seedlings—
Carnie's 271
Rural New Yorker 271
Sutherland's 273

PAGE.
Golden White 157
Grosbeak, The Evening..... 135
Grouping Trees in Parks..... 268
Errors in..... 357
Governor Wood Cherry 191, 361

H.

Haliburton Apple..... 330
Hardwood in Ontario 6
Hardy Apples..... 216
Hardy Prennials 85
Haverland 111
Height of Trees, To Find 244
Hedge and Windbreak..... 182
Hellebore and Potassium Sulphide.. . 123
Herbarium, Making..... 213
Hillborn Raspberry 121, 158
Home Fruit Garden..... 77
Hop Growing..... 186
Hotbed Sash, Sizing for..... 188
House Plants in April..... 120
In Summer..... 180
Hubbardston's Nonsuch....97, 176, 207, 234
Hydrangea, Otaksa 2
Paniculata 2

I.

Ink for Zinc Label 122
Insecticides..... 167, 168, 175
Iris 298

J.

Jerusalem Cherry..... 274
Jessie Strawberry..... 15
John Hopper..... 31

K.

Kelsey's Japan Plum 218
Kieffer Pear 93, 122
Kniffen System 38

L.

Labyrinth, How to Make 156
Ladders, Convenient 36
Lady Rusk..... 81
La Rue Apple 8, 43
Leconte Pear..... 217
Leeds Apple 9, 44
Letters from Russia....16, 17, 102, 239
Lilium Harrisii..... 57
Low Prices of Fruit..... 177
Lucretia Dewberry 153

M.

Maplehurst Fruit Farm 35
Marketing Berries 192
Mrs. Cleveland..... 305
Mice, Protection from..... 338
Mildew of Gooseberries..... 31
Mills Grape 49, 121
Model Peach Orchard..... 215
Money in Garden..... 290
Mrs. John Laing Rose..... 24
Moving Trees in Winter..... 88

PAGE.
Myosotis..... 130
McMahon's White..... 174, 216
McLean Apple 9, 44
McIntosh Red 24

N.

Narcissus 58
Nectarine 299
Newton Pippin..... 46
New York Fruit Consumers 59
New Fruits—
Nectarine 299
Gooseberry..... 300
Seedling Apples 300, 329
Seedling Pears 351
September Cherry..... 300
William's Strawberry 241, 299
New Varieties 94
Nipissing, Country North of..... 289
Norway Spruce for Windbreak..... 50
Norway and White Spruce..... 244
Nuts for Profit 92
Nymphæa odorata 355

O.

Ontario Apple..... 114, 188
Orange Growing in California..... 185
Orchard Planting..... 108
Orchards, Small 237
Oleanders 57
Ohio Strawberry Growers 343
Originators of New Fruits, Protection of 286

P.

Packages for Fruit..... 194, 313
Packing Fruit..... 107, 194, 229, 288
Paris Green *vs.* London Purple..... 249
Antidote for 272
Parker Earle Strawberry 314
Past of our Association 12
Places to Plant Trees..... 88
Plain Hints for Fruit Growers..136, 162, 203
Planting an Orchard 108
Planting Trees, Spring or Fall..... 230
Plants tested in Grey Co..... 96
Peaches, Best..... 6
Hardy..... 153
Peaches, New—
Brigdon 353
Hyne's Surprise..... 153, 207
Wager 245
Peach Trees, Laying Down 227
Peach Growing, Success in..... 336
Peach Yellows 227
Pearl Gooseberry..... 29
Pear Leaf Blight 232
Pears on Apple Stock 93
Pears, Ripening..... 226
Pears, Winter, for Home Use 94
Pears, New Varieties—
Hoosie..... 218
Seedling 351
Triomphe de Vienne 300
Vermont Beauty 207
Perennial Plants, Growing..... 83

PAGE.

"Perfectly Hardy" 323
Peter Henderson 61
Preserving a Lawn 56
Pressing Flowers 214
Princess Louise 45, 155, 201
Primula obconica 54, 56
Cashmeriana 55
Farmosa 56
Mistassinica 56
Rosea 56
Vulgare 55
Pond Lilly, Planting 355
Poplar, Uses of..... 357
Potato *vs.* Apple Growing 236
Poetry, "1890" 1
A Winter Jingle 64
Autumn..... 281
Clouds..... 280
English Primrose..... 234
Foxglove 118
"Herried Thoughts" 150
Narcissus 158
Pomace as Manure 64
Progress Raspberry..... 82
Plum leaf Fungus..... 315
Plum Growing in Michigan 116
in cold regions..... 201
Plums, New Varieties—
Kelsey's Japan 218
Weaver 352
Plums, Best 5, 17
Packing for Market 7
For Market Purposes 80
Purslane, to Exterminate 305
Pruners 154
Home Made 40
Pruning the Grape 37
The Raspberry 192, 245
Trees 70, 124, 137
Pyrethrum 167

Q.

Quinces for Orchard 338
Growing Trees 337

R.

Raisins, Canadian 49
Raspberry, Paper on 115
Raspberries, New Varieties—
Hillborn 121
Progress 82
Raspberries, Propagation of.....95, 124
For Market 302
Profitable 253
Pruning 192, 245, 345
Rational Pruning 345
Red Bietigheimer Apple..... 239
Red Russet 248
Relation of Bees to Flowers and Fruit
111, 141
Repacking Apples in Britain..... 245
Review of the Past of Our Association. 12
Richardias 22, 94, 181
Richardia Offshoots..... 249
Robins. Spare the 262

PAGE.

Root Grafting..... 238
Rose Notes 24
Rosery, A..... 355
Roses—
John Hopper 185
Mrs. John Laing 24
Rostov Pea 16
Rules for the Garden 69, 120
Russian Apricot 92, 102, 155, 185
Russian Apples 132, 189
Russian Exchange 60
Rhubarb, Stoats Monarch..... 215
From Lindsay 219

S.

Salt as a Fertilizer 248
Saskatoon Berry 94
Salome Apple 157
Scarlet Oak 269
Sparrow, House 211, 308
Small Fruits Tested 80, 91
Spraying 92, 123, 155, 361
Shallow Planting 338
Staghorn Sumach 89
Stachys..... 183
Staking Young Trees 11
Station Gardens 272
Strawberry Leaf Blight 109
Strawberry Culture, Notes on 14
Composition of 217
Crop, Rotation of 252, 320
July Report 242
Strawberry 208
Strawberries, Barren 247
In Matted Rows 303
Mixing..... 29
New and Old Varieties..... 110
Perfect and Imperfect Compared...347
Strawberries Varieties—
Best for Market..... 98
Belmont 240
Bubach.....111, 140, 240
Cloud 305
Haverland 111, 141
Jessie 15, 140, 240
Lady Rusk..... 81
Mrs. Cleveland 301
Warfield 111, 141
William's 241
Seasonable Hints..... 36
Seeding in Orchard 156, 188
Seed Sowing 219
Shelter and Shade 270
Shipping Fruit 178
Spring or Fall Planting 156
Switzer Apple.....31, 79
Sowing Perennial Flower Seeds 84
Some Prominent Canadian Horticulturists—
Charles Arnold 282
John Croil 222
Chas. Gibb..... 159
Wm. Saunders 33
Scott's Winter.....157, 174, 187
Showy Flowers..... 129

PAGE.

Snowball Tree 341
Spotted Arum 20
Storing Fruit 312, 348
Scuffle Hoe 194
Sulphate of Copper 288
Sumach for Paper Pulp 289
Summer Frost 31
Summer Meeting 223
Sutherland's Seedling Gooseberry 273
Synap Apple 17, 49

T.

Tasmanian Apples 153
Ten Acres, How to Make the Most of .. 254
Trees for Fence Posts 3
Thinning Fruit 199
Tobocco, Curing of 185
Tobacco Decoction 167
Tools for Pruning 154
Tomato Culture 47
Tomatoes, Ripening 291

V.

Vegetable Gardening 151
Vegetables, Medicine in 266
Vegetables, Varieties and Experience .. 11
Verbenas 129
Viburnum 341
Vinery, Cold 273

PAGE.

W.

Wager Peach 245
Walnut Tussock Moth 304
Water Lily 297
Warfield 2, 111
Wealthy 46, 148
Western New York Horticultural Society 73, 98
White Cap 272
Wilder 251, 301
Wild Flower, Care of 360
William Saunders 33
William's Strawberry 124, 299, 329
Windbreaks 50, 338
Winter Apples 311
Winter Meeting 4
Winter Protection of Grapes 53
Winter Protection of Plums 202
Winter St. Lawrence 24
Winter Work 347
Wood Ashes 40, 235, 304, 305, 337
Woolverton Fruit Farm 35
Worden Grape 121
Worms in Plant Pots 94

Y.

Yellow Transparent 121

Z.

Zinnias 130

LIST OF CONTRIBUTORS TO VOLUME XIII.

Beadle, D. W. 288, 342
Beall, Thos. Lindsay, ... 148
Bucke, P. E., Ottawa, ... 21, 115, 258, 316
Budd, J. L., Ames, Iowa, ... 24, 165, 227
Caston, G. C., Craighurst, ... 108
Cline, Geo. W. Winona, ... 80
Cockburn, J. P., Gravenhurst, ... 289
Croil, John, Aultsville, ... 10, 148
Dempsey, W. R., Rednersville, ... 320
Fisk, J. M., Abbotsford, Que 264
Foote, L., Nepean, ... 14, 114, 136, 162, 203
Frankland, Thos., Stonewall, Man. 257
Gilchrist, A. 54
Goff, E. S., Madison, Wis. 207
Gott, B. Arkona, ... 86
Gowan, Grandma, Mount Royal Vale Que. 1, 150, 281
Hick, Walter 209
Hoskins, Dr. Newport, Vt. 174, 236
Hunt, Frank, St Thomas 105
Lake, W. F., Buffalo, ... 18, 50
Lambert, Sarah New Edinburgh 180
Little, John, Granton 110, 140, 242, 343
Manley, Mrs. Dr., Owen Sound 118, 334
Mitchell, F., Innerkip 24, 119
McKnight, R., Owen Sound 60, 111, 141
Newhall, J. Toronto 211
Nichol, D., Cataraqui 8, 135, 252, 323
Niemetz, Jaraslav 16, 102, 238
Patten, C. S. Charles City, Iowa 79
Pettit, M. 79
Phipps, R. W. 89
Race, T. H., Mitchell 146, 230, 283, 319
Rice, L. B., Port Huron, Mich 295, 297
Simmers, Hermann, Toronto 20, 58
Stephenson, A. P., Nelson, Man 285
Summey, E. E., La Salle, N. Y. 83
Williams, J. P., Bloomfield 176
Wood, Omerod & Co., Edinburgh, Scotland 106, 138
Wright, A, A., Renfrew 234
Woolverton, L. 2, 4, 22. 33, 35, 36, 40, 43, 66 67, 70, 75, 77, 97, 100, 109, 129, 131, 133, 143, 159, 162, 169, 191, 192, 296, 201, 221, 223, 225, 240, 241, 251, 253, 261, 282, 286, 311, 315, 321, 328, 329, 341, 351, 355
Woolverton, C. E. 12

INDEX TO ILLUSTRATIONS.

PAGE.

A.

Approach, The 67
Arnold, Mrs. Chas 281
American Currant Borer..... 134
Apchippus Butterfly..... 261

B.

Barry, Patrick 295
Bracing with wire..... 38
Blight, Strawberry Leaf, Figs. 30-31.... 109
Bores, Black Currrnt..... 133
Basket Holder 192
Budding Stone Fruits..... 218
Bordeaux Mixture on Pear trees..... 233
Bubach Strawberry 240
Burdock Cutters 328

C.

Cobea Scandens..... 213
Calla Variegated 23
Chinese Sacred Lily..... 58
Clematis—Coccinea, Crispa, Lanuginosa Jackman. 86
Cut Worms—The Variegated, Greasy, Cochran's..... 125
Currant Borer..... 134
Crown Grafting 144
Chisel Grafting 144
Croil, John 222

D.

Dryden, Hon. John..... 322
Drawers for Apples. 312
Diagram showing quantities of apples etc 317

E.

Experimental Grounds of "The Canadian Horticulturist"..... 35

F.

Foxglove..... 19
Farmer's Fruit Garden..... 77
Fruit Picking Stand 263
Forcing House, Handy..... 324

G.

Gibb, Chas 159
Greenhouse, A Cheap..... 26
A Plan of..... 27
Gibson Apple, The..... 43
Grafting..... 144
Grape Grafting..... 145

H.

Hydrangea Paniculata 2
Home Made Pruners 40
Henderson's Seedling, Section of 332

I.

Iris, The..... 298

PAGE.

K.

Kandyl Synap..... 17
Kniffen System..... 38
Knife for Pruning.. 154

L.

Larva of Danais Archippus..... 261
Laying Down Peach and Plum Trees .. 227
Laying Down Plum Trees 202
La Rue..... 8
La Rue, Section of 9
Ladder, Self Supporting..... 36
" for Dwarf Pear Trees..... 37
Lady Rusk..... 81

M.

Mrs. Alpheus Hardy..... 25
Measuring Trees 244

Mc.

McLean, The..... 44

O.

One Arm Renewal 39

P.

Pruners, Home Made..... 40
Primula Obconica..... 54
Pruning, Figs. 22, 23 and 24..... 71
Progress, Raspberry..... 82
Propagation of Blackcap Raspberries ... 95
Pruning Young Trees, Figs. 32 and 33 124
Propagating Raspberries, Figs. 34 and 35 125

R.

Rostov Pea..... 16
Richardia Albo-Maculata 23
Red Bietingheimer 239
Renaud's Seedling, Section of..... 331

S.

Stand, Fruit Picking..... 263
Saskatoon Berry..... 257
Sapieganka Pear..... 238
Scuffle Hoe..... 194
Saunders, Prof. Wm. F.R.C.S..... 33
Strawberry Leaf Blight, Figs. 30 and 31 109
Spraying Outfits 155
Saw for Pruning..... 154
Stachys 183
Shot-Hole Fungus, Figs 70 and 71 315

T.

Ten Pound Basket..... 195

U.

Useful Tools 154

W.

Water Lily..... 297
Wooden Box used in Marketing Grapes. 313



HYDRANGEA HORTENSIA

THE CANADIAN HORTICULTURIST



VOL. XIII. *JANUARY, 1890.* NO. 1.

Written for the CANADIAN HORTICULTURIST *by* GRANDMA GOWAN.

1890.

FATHER TIME, of hoary age,
Appears again upon life's stage,
Withdraws old eighty-nine from view
As ninety makes his grand *debut;*
And shouts his prologue to the world
Mid din of bells, and flags unfurled.

Hear our youthful king's oration,
His promises to every nation;
He speaks of ending Ireland's ills,
Repeal eviction and coercion bills,
Give back to Ireland national life,
And equal laws to end its strife.

Why should our brethren weep and cower
'Neath the sad abuse of power?
(God grant ere vengeful thoughts grow strong
And Ireland avenge its hated wrong;)
Ah! from the gulf of bloom Hope's silvery rays
Give a redeeming trace of better days.

Points to the land of the Sitting Sun,
And the mighty brotherhood in one;
He frowns on "trusts" and combination,
Favors equal rights and emigration—
The blending of all human kind
In one grand universal mind!

Talks of a "Fraternal Union"
O'er the Almighty's vast dominion;
In the millennium era, this may be,
When the angel stands on earth and sea,
With uplifted hand the world o'er,
And swears that *Time* shall be no more.

Mount Royal Vale.

THE HYDRANGEA.

SOUTH of Philadelphia, the tender varieties of the Hydrangea, of which there are about a half-dozen popular ones, are grown in the open air; but at the North, with the exception of one or two varieties, they are only grown as pot plants, either in the house or conservatory.

The Hydrangea belongs to the Saxifrage family, and is a near relative of the well-known Syringa, or Mock Orange, of our gardens. Its name is derived from two Greek words, ὑδωρ, water, and ἄγγος, a vase, and thus signifies a water vessel, in allusion to the shape of the fruit. It is widely distributed over the world, some thirty-three species being known, some of them natives of Eastern Asia, Java and the Himalayan Mountains, and some of them natives of North-west and South-east America. A variety known as *Hydrangea arborescens*, is found growing wild on rocky banks from Northern Pennsylvania to Illinois and southward.



FIG. 1.—HYDRANGEA PANICULATA.

One of the best and most popular varieties for pot culture is the one represented in our colored plate, viz:—

HYDRANGEA OTAKSA.—Nothing can possibly be more beautiful as a decorative plant on the porch or verandah than one or two of these plants, with its huge tresses of flesh colored flowers. These, in botanical language, may be described as disposed in large terminal, globose, leafless cymes. The leaves of the plant are opposite and deeply serrate. Where well-grown it reaches a height of about two and a-half feet, and is hardier than some of the other varieties. This variety was introduced from Japan in the year 1868.

CULTURE.—The *Hydrangea Otaksa* may be easily propagated by cuttings, and florists, therefore, often make them annually, and allow them to produce one head of flowers each, and then throw them aside; but, for the amateur, a much better way is to grow it as a shrubby plant to bloom for a number of years in succession. The culture is easy, and any one can succeed by attending to a few simple particulars. The soil should be rich and may be made of loam and decayed cow manure, in equal parts. One very important particular is to give it plenty of water during the growing

season, and a little shade from the burning rays of the summer sun. The display of bloom will be enhanced by the application of liquid manure during the flowering season. After flowering the plant may be set in the cellar until spring.

We do not know of any instances of this variety being grown in the open air in Ontario, but *Hydrangea paniculata grandiflora* has been tried and found perfectly hardy at least in Southern Ontario, as a lawn shrub, for which its beauty of appearance renders it especially desirable. The star-shaped flowers of this variety are white, and where well grown, are disposed in large leafy panicles of nearly a foot in length, see fig. 1, quite different in form from those of *Hydrangea Otaksa*, and more scattered. The perfect and the sterile flowers are mingled, the former being small, and the latter often as much as one inch across; it is late flowering, and most desirable on this account, as it has scarcely any competitors in its season of blooming. This is also a native of Japan, and was introduced from that country in the year 1874.

TREES FOR FENCES.

TWO experiences favorable to living fence-posts are reported as follows in the *Farmers' Review*—the first from Kansas, the other from Nebraska, the author of the latter saying that the trees "will last longer than you and your son, too," while even cedar cut and set involves a constant expense.

"I think there is nothing better. I use box elder planted eight feet apart; stretch the wires very tight to a well-braced corner post of dead timber. Attach the wire to every third tree by using a piece of smooth wire eight inches long stapled in the middle of the tree, the ends bent together and around the fence wire. The tree will then have to grow three inches before reaching the fence wire. It can then be pulled loose and the act repeated. Have never had a wire broken or a tree injured, yet the fence is built over a high hill, in what is generally known as a windy country."

"Ten years ago I built a mile and a-half of barbed wire fence and nailed on each tree a strip of board two and a-half inches wide to staple the wire to. I used narrow strips because the trees were small. It is a success; the fence now is ten years old on trees fifteen years old. Trees were cottonwood and five years old when used for posts. White cedar posts put in the same year are now being replaced, perhaps half of them. If you don't want them to shade too much ground, cut off the tops and keep them low; they won't die. Set trees for posts by all means where land is cheap."

THE WINTER MEETING.

OUR Meeting at Windsor on the 11th and 12th of December, was one of great profit, and will no doubt do much toward interesting the farmers of the County of Essex in fruit culture. The dark, rich land of that section of country seems to be peculiarly adapted to the culture of the grape, and already some very extensive vineyards have been planted, which give enormous crops of fruit.

The officers of the Association were taken out in carriages to Walkerville, to see the extensive industries which are being opened up in this suburb of Windsor, through the judicious expenditure of his wealth by Mr. Hiram Walker. As fruit growers, we were much interested in a visit to the Walkerville basket factory, where fruit packages of every style are being turned out in great quantities.

Few changes were made in the Directorate, except that A. M. Smith, of St. Catharines, was made President; J. A. Morton, of Wingham, Vice-President; D. Nichol, Cararaqui, Director for Agricultural Division No. 3; T. H. Race, of Mitchell, for Division No. 11; and N. J. Clinton, Windsor, for Division No. 12.

The town of Windsor rendered every courtesy, through the Mayor extending a hearty public welcome to our Association and providing an excellent programme of music to enliven the evening sessions.

A novel feature of the Windsor meeting was the practical illustration of the renewal system of grape pruning, by Mr. O'Neill, of Windsor, for which a trellis and vines were brought upon the platform, and pruned in illustration of the principles laid down.

One of the most important tasks which the Association has yet undertaken is the preparation, by a committee consisting of Messrs. Beall, Allan, Dempsey and Bucke, of an ONTARIO FRUIT CATALOGUE, so arranged as to show (1) a list of the varieties grown in the Province, and (2) lists showing the varieties best suited to the climate, elevation, soil, etc., for every district and locality. These lists are to be so arranged as to enable judges at competition exhibitions of fruits, to intelligently estimate the true comparative value of any fruit of exhibition, and thereby secure a uniformity and fairness in judging fruits at such exhibitions.

The plan of rating supposes each variety to be a perfect specimen of its kind, and the maximum which any variety may have under each heading is 10 points. Frequently, of course, imperfect specimens are exhibited, in which case the values assigned most be reduced one or more points for each of such defects, as (1) under size, (2) unevenness of size on the plate, (3) wormy, scabby,or ill-shapen samples, (4) lack of stem or calyx, (5) bloom polished off, or for anything which tends to change the natural color of the fruit. The

total value is for use when prizes are offered for fruit, without designating the purpose for which such fruit will be required.

We give the values of a few common varieties of apples, from the catalogue, to show the principle upon which it is being prepared.

APPLES.	Season.	Quality for		Commercial Value in		Total.
		Des'rt.	Cook'g.	Home Mkt.	Foreign Mkt.	
Alexander	A	0	9	9	10	28
American Golden Russet	W	9	8	8	9	34
Baldwin	W	2	5	7	8	22
Ben Davis	W	1	1	8	9	19
Cabashea	W	2	7	8	9	26
Canada Baldwin	W	6	8	8	9	31
Colvert	A	1	9	7	8	25
Cranberry Pippin	W	7	8	8	8	31
Duchess of Oldenburgh	S	2	10	10	10	32
Fameuse	A	9	5	9	8	31
Gravenstein	A	9	9	10	10	38
Golden Sweet	A	2	4	1	0	7
King	W	8	10	10	10	38
Lady	W	9	0	1	9	19
Northern Spy	W	8	10	10	10	38
Ontario	W	9	10	10	10	39
Red Astracan	S	5	7	7	0	19
Rhode Island Greening	W	8	10	8	8	34
Roxbury Russet	W	6	8	8	9	31
Shiawassee Beauty	A	7	6	6	0	19
Tolman Sweet	W	2	7	5	6	20
Tetofsky	S	1	5	1	0	7
Wealthy	A	8	6	9	9	32
Yellow Transparent	S	6	7	4	0	17

PLUMS.—In the discussion of valuable varieties of plums, Mr. S. D. Willard, of Geneva, N.Y., a most successful plum grower, gave the following six as the most desirable for home use, viz:—(1) Bradshaw—one of the most profitable and the earliest good plum; (2) Lombard, among plums what the Concord is among grapes; (3) Geuwi, a hardy, profitable dark purple plum following the Lombard; (4) Hudson River Purple Egg, one of the best fancy plums for market, hardy and productive; (5) Peters' Yellow Gage, introduced by Mr. Barry, the very best light colored plum; (6) Coe's Golden Drop.

Where hardy enough, he would add the Reine Claude de Bavay, as being one of the most profitable of market plums.

In reply to questions, he said that Weaver, Wild Goose and a quantity of that trash, would do to experiment on; Quackenbos is very desirable, but a shy bearer; Stanton was one of the best for canning purposes; Field ripens ahead of Niagara, like it in size and appearance, and is one of the desirable new varieties; Grand Duke is a late introduction from England, and promises to be the best late plum for market; it has been sold at $1.00

per basket of eight pounds; it is a seedling raised by Thos Rivers, England; Bassett is worthless; Prunus Simoni had been fruited by him, and he considered it not to be of the highest quality, but it was attractive in appearance, and would sell well on the fruit stands.

PEACHES.—In reply to the question, What are the six best varieties of peaches to grow for market in the Niagara district?—the President, Mr. A. M. Smith, gave the following list, viz:—(1) Alexander, (2) Early Rivers, (3) Hales, (4) Crawford's Early, (5) Wager, (6) Bowslaugh's Late. The latter is one of the surest bearers. Stevens' Rareripe is very desirable, an Old Mixon in appearance, but ten days later and much superior. It promises to become a first-class market variety. It has the quality of hanging well on the tree without decay.

In the evening a lecture was given by Prof. Panton, of the O. A. C. Guelph, on "Fertilization of Plants," which was most profitable, and made full of interest in the manner which Prof. Panton is so well known to treat scientific subjects.

Thus was ended a meeting long to be remembered by all those privileged to attend.

HARDWOOD IN ONTARIO.

By R. W. PHIPPS, COMMISSIONER OF FORESTRY FOR ONTARIO.

THE possible scarcity of that great requisite to the rural Canadian, hardwood for fuel, leads me to suggest that the ideas usually held as to the quantity within our reach are exaggerated. I see, in a later article, the *Bobcaygeon Independent*, a paper which should be well informed on such subjects, says:—

"What about our cordwood? That is a very important matter, and every year it increases in importance, for the sources of our cordwood become fewer and more remote. There is not so much cordwood left in Canada as is commonly supposed. Of the thousands of miles of railway operated by the Grand Trunk Company, the Midland is the only division that runs through a cordwood country, and only a portion of that division can supply fuel in considerable quantities. The City of Montreal is even now suffering from a dearth of cordwood. Maple in Montreal is selling at $8.00 a cord, birch at $7.50, and beech at $7.00. A large dealer has publicly declared that there is no cordwood to be bought throughout the country. Toronto has for its chief sources of supply the Victoria branch of the Midland, the district around Penetang.; the new extensions of the Northern Railway; two or three years will make a great reduction in those sources of supply, and then there will be the same condition of affairs in Toronto that now exists in Montreal. There are several facts connected with the cordwood trade which deserve

notice. The wood itself is of no value. It realizes nothing, the man who cuts it giving the wood gratis. When the wood reaches Toronto it sells for $5.00 a cord, the $3.00 being consumed in freight and profit to the dealer. The wood difficulty is becoming serious."

It would be well if those who are selling their wood as above would consider this. We should be planting instead of cutting so much down without any replacement.

BUSHEL BOXES FOR POTATOES.

NEXT to the potato digger, the greatest labor saver on the farm, in the line of potato culture, is our bushel box. Potatoes can go from the field to the grocer in the city, and then to his customer's cellar on spring wagons and under canvas, so they are fresh and nice as though just dug in the garden. The boxes, of course, are left with the grocer until emptied. When digging, the boxes are scattered through the field. A man can pick up a bushel almost without lifting, if he takes four rows at once. Then two men can empty them into the wagon, as it is driven through the field, very rapidly, or set them in, to go to the cellar. It is a great saving of labor over the common way of picking up in a basket and carrying them to heaps, then picking them up again from the heaps into the wagons. These boxes hold a bushel level full, so they can be set up three or four deep in field, wagon or cellar. We have board covers to put on when it looks like rain, or to keep the sun from injuring the potatoes. If you want to load a car from the field they are just the thing. There are hand holes in the ends, so they are about as easy to carry as a basket. The size is 13 x 13 x 16 inside measurement.—T. B. TERRY, *before a Farmers' Institute in Wisconsin.*

PACKING PLUMS FOR MARKET.

THE Plum is perishable, and more care in handling is required than often is given, especially on sorts designed to be sold on the retail stands of distant cities. These certainly should be picked with stems adhering and carefully laid in five pound to eight pound baskets; in all cases picking the small and inferior fruit by itself, to be marketed as second class. And while the varieties designed for preserving need not be so carefully packed, equal care should be bestowed in sorting that no imperfect fruit be packed in packages denominated first-class. In doing which you will find some one ready to purchasey our fruit at its fair value, giving you fair compensation for all your labor and care, and you, in conclusion, abundantly satisfied that well-grown plums shipped in clean, neat packages, at the proper time and to the proper markets, are a crop not to be despised.—S. D. WILLARD, *Western New York Hort. Society.*

SOME VALUABLE NEW CANADIAN APPLES.

By D. Nichol, Cataraqui.

HEREWITH I send you samples of four kinds of apples grown in my orchard.

No. 1 is the "La Rue," which has already been described in your journal. The twenty trees of it which I have bearing have proved to

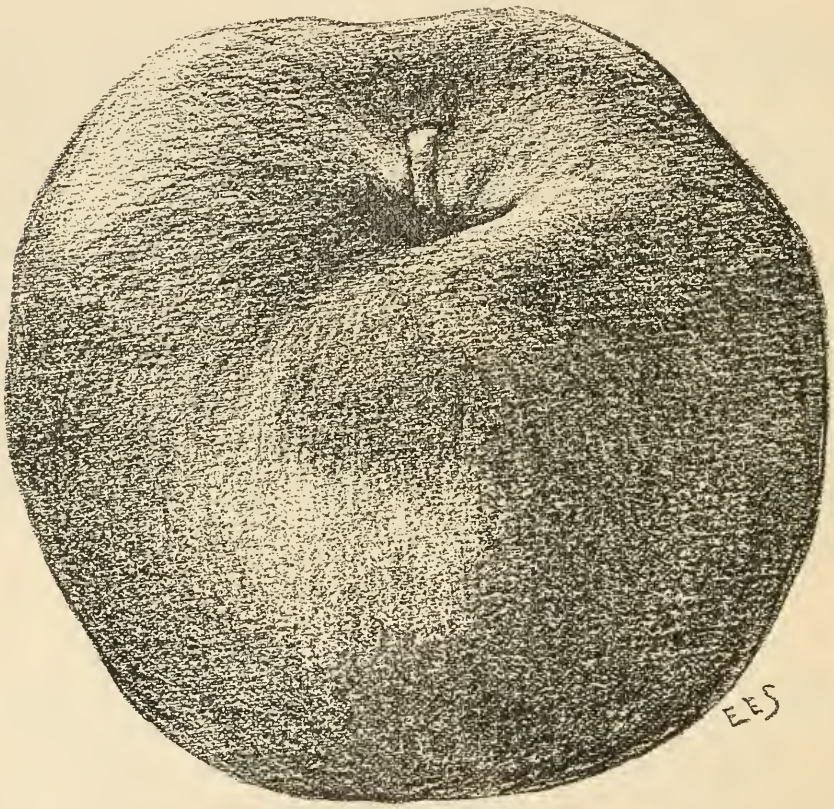


Fig. 2.—The La Rue, Drawn and Engraved Exact Size of Sample.

be the most profitable of any kind I have tried, and I have thoroughly tried almost every known variety. Large red apples are always in demand, and sell readily at the highest price in our local markets.

No. 2, which I have named the "Leeds," is a very excellent sweet apple, from a seedling which, thirty-three years ago, I found growing on the farm which belonged to the late Isaiah Griffin, in the township of Yonge, county of Leeds. As a baking apple it is decidedly superior to the Talman Sweet. On account of its large size it sells more readily and is

quite a good keeper. For canning purposes I do not know of any kind equal to this. The tree is a robust grower, a regular producer, and has never shown any signs of tenderness in this hard climate.

No. 3, which I have named the "Gibson," is, in my opinion, a first-class dessert apple. Thirty-four years ago I found the parent tree growing on a farm belonging to Wm. Gibson, in the county of Leeds, nine miles west of Brockville. This tree, I believe, is still alive and bearing heavy crops of fruit. It is probably a seedling of the Fameuse, having some resemblance to it. Its flavor is more aromatic, flesh firmer and crisper, size rather larger, color darker red—not so apt to spot; altogether it is an improve-

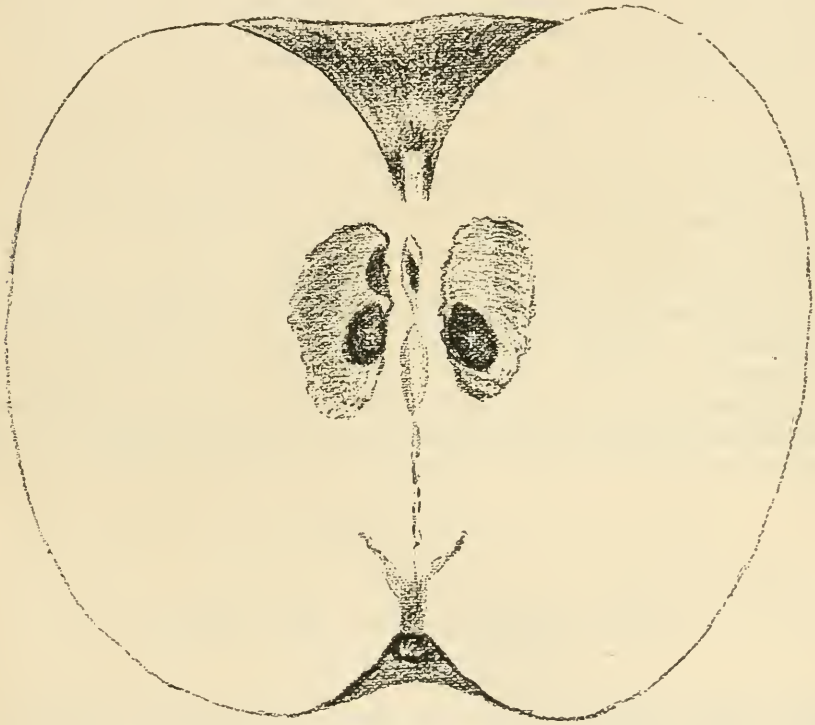


FIG. 3—SECTION OF LA RUE.

ment on the Fameuse. The tree has proved to be as hardy as the Duchess, a free grower, but, like the St. Lawrence, does not bear early.

No. 4, which I have named the "McLean," is from a seedling found on the farm of the late Alex. McLean, of the township of Elizabethtown, county of Grenville. This I consider a dessert apple of the finest quality. Medium size, sub-acid flavor, yellow color, with blush cheek and very thin skin. Keeps till January. The tree is perfectly hardy, but rather a shy bearer.

Doubtless some will say there is no use in trying to introduce new varie-

ties unless we can produce something better than the Northern Spy, R. I. Greening, Ribston Pippin or King; but that argument only holds good in districts where they can be profitably grown. In this part of the country those sorts cannot be grown with profit, because the trees are not enduring in this climate. Just about the time they begin to bear well they begin to die. Some amateurs have contradicted this statement, but as they become older they are taught by experience. This is a matter which is not to be decided by ten or twelve years experience of a single individual. We sometimes have a succession of mild winters, through which almost any kind of apple tree survives; but when severe winters come, as occasionally they do, with the thermometer over 30° below zero, the lives of the half hardy kinds are considerably shortened. It requires a lifetime's experience to find out what kinds are most suitable for certain climates, therefore beginners at fruit raising should be guided somewhat by the experience of those who have gone through the mill, rather than be persuaded to purchase whatever kinds travelling agents may be pleased to recommend. In this part of the country we can grow apples of very fine flavor and high color, but here apple trees can be valued only according to their adaptability.

Our great need is a hardy, long keeping, good shipping apple of first-class quality and good appearance, with thick skin, in order to bear transportation well. Whoever will produce such would be entitled to a very large bonus.

The Ben Davis possesses all the requisites except quality—the Baldwin all except hardiness. It seems to me, there might be obtained a cross between the Duchess and the Baldwin which would fill the bill.

OUR GARDEN AND OUR WORK.

By John Croil, Aultsville.

OUR Editor asks me and asks you, reader, to meet him in his sheet and take a turn at the wheel. What does the man mean? Isn't he paid to sit at that desk, day in and day out, from morn till night, and write, till he has made that little magazine of ours as attractive as pen can make it? Paid, we admit, but have some doubts whether our payments have been in just proportion to his labors, and the success that has accompanied them. Not only by his determined perseverance has our Association been freed from a cumbrous debt, but our magazine from small beginnings has risen to bear favorable comparison with the best horticultural papers of the day.

But the best machinery will, overtaxed, give out. We'll have to confess that it is our duty to strengthen his hands and encourage his heart. It

would add ten fold to the value of the HORTICULTURIST if all of you would give to its readers the benefit of your experience.

I'll try to practice what I preach with a few rambling thoughts.

With a lively remembrance of the fate of Lot's wife—*rather a salt subject*—we think it's well sometimes to look back. When these lines reach the reader another year will have run its course, another milestone past. What have we learned or what have we lost on the road?

I'm afraid I am safe in saying the season has been an unfavorable one for the gardener. In many sections of the country, the heavy rains of last fall and this spring left the ground in bad condition. A heavy frost on the 24th May did much damage to strawberries and other fruits. The blight struck the potatoes in this district so early as nearly to destroy the whole crop. The returns from the orchard were the poorest we have had for years, and the few apples we had were more than ever affected by the spot. Not a very encouraging report.

This year we will have to learn wisdom from our failures. We had not the control of the weather—better we had not. Our crop was unremunerative. We must take the good year with the bad, just as the merchant does. Apples are almost indispensable at the table, yet many will either have to pay excessive prices for them or do without. Will not the deprivation teach us the more to appreciate our next crop, and the folly, too, of complaining last year that apples were a drug and not worth growing? How many of our daily blessings, health among them, do we look on as things to be ours as they ever were, not appreciating till deprived of them? Some of you had a few apples, but they were badly worm eaten. If you had read your HORTICULTURIST well, you would have found a cure that would have well paid your trouble—spraying your trees.

The vegetable garden did fairly; let us take a look around it.

Beans.—Of six kinds planted, I found the Dwarf German was the best and most prolific; Henderson's New Bush Lima a novelty and a delusion.

Beets.—Edmund's and Dewey's Turnip both choice. Reeves' Imperial Long Blood turned out the first pure long blood beet I have come across for years. Seed purchased from J. D. Roberts, Cobourg.

Cabbage.—Burpee's Early Express stands first on the list for earliness and good quality. Henderson's Early Summer for medium and late we find good—never fails to head.

Cauliflower.—Failed with us this year. Have found Vick's Ideal the best.

Carrots.—Danver's Half Long as good as any for the table.

Celery.—Nelles' Self Blanching, Paris Large Golden, Henderson's White Plume, all did well. Red kinds failed to mature.

Corn.—Shakers' Early, good. Stowell's Evergreen for late.

Cucumber.—Tried Early Russian, found no merit in it. The old White Spine as good as any.

Melons.—A failure; season too wet.

Onions.—Red Wethersfield, poor crop.

Parsnips.—Improved Guernsey very fine and as large as we think desirable. I measured one 13 inches round, and like Bobby Burns' grace, as long as my arm. It tried the patience of a short tempered man to find the bottom of it. In volume 6, page 33, of the HORTICULTURIST, we read of one 18 inches round. The bulk of mine in the ground all winter may probably be larger in the spring than the above, dug 9th November.

Peas.—Belong exclusively to the sparrows and blackbirds here, the pods excepted, which they leave for us.

Potatoes.—Burpee's Seedling No. 37, for which $225 was last year offered in prizes to the most successful growers, promises well. Early Puritan also, but was destroyed by the blight. Pearl of Savoy, the best early variety we can confidently recommend.

Turnip.—Burpee's Bread Stone Swede, good.

Tomatoes.—Mitchell's No. 1 (new), Volunteer and Favorite, about equal, all excellent.

Notes of some experiments with fertilizers would too much prolong these already too lengthy remarks I may say, however, that I found the results from hen manure at least as good as from fertilizers costing $40 per ton; and from the trial of nitrate of soda, am inclined to think very favorably of its application with superphosphate, as recommended by Mr. J. Harris in back numbers of the HORTICULTURIST.

Wishing the many members of our Association a Happy New Year, and many returning ones, I wish I could persuade each of them to obtain at least one new subscriber to our magazine. The result to the public and to ourselves would be marvelous. Try it, friends.

A REVIEW OF THE PAST OF OUR ASSOCIATION.

BY C. E. WOOLVERTON, GRIMSBY.

DURING the past fifty years what enterprise has begun, continued and succeeded better than fruit growing. Cæsar's words, "*Veni*, *vidi*, *vici*," was a short letter, but signified much to the Senate and Roman people. But when we think of the training, marching and suffering, in order that he could say those words, they speak volumes that the careless man little heeds; or when a youth neglects his studies or finds fault with his food, he little knows the suffering his parents may have endured to give him his privileges. And now while fruit growers in Canada rejoice, they forget the patient endurance and labor that has placed us second to no country beneath the sun. Rome was not built in a day; the soil and climate was there, yet it needed a Romulus to begin the work.

The days of neglect are fast passing away; we are not only putting our shoulders to the wheel, our hand to the plow, and foot to the spade;

but we are also using our brains and opening our eyes to do what nature tells us can be done. A few years ago there was only one fruit tree where now there is a hundred. Farmers came to Grimsby for miles after their winter supply of fruit, while their own soil and climate called them to sit "under their own vine and fig-tree." Some one said to Columbus: "It seems a very easy matter to have discovered America;" but his reply was, "Can you stand this egg on its end?" and when he failed to do so Columbus gave the egg a rap on the table and it stood—a thing easy enough when you know how. Sixty years ago we had the same soil and climate; but we said, "Trees will grow placed in the corner of the fence, trimmed with the axe, and browsed by the cattle." Why, trees are no better prepared to shift for themselves than our domestic animals; even Adam was to dress the garden in Eden, and how much more it was needed outside where the thorn and thistle grew broader and higher. Even the ancient poet Horace called the careless man "the wretch that struck the tree down, leaving a miserable stump of wood."

When fruit growing was in its infancy there were men found to cherish the enterprise. They looked not only at what it was then, but at the possibilities, proportionate to the energies of the soil and the power of man. The nucleus was small when Judge Campbell, of Niagara, centralized our gatherings; and the late Dr. Beadle, of St. Catharines, almost deserves to be canonized for his efforts, both of faith and works, in the good cause. If we fail to remember the words of these men, we at least caught enough of their spirit in those early days to engage in the enterprise of fruit culture. Some one has said, "Those who love virtue ought to teach their sons to love it too;" so our late Secretary, Delos W. Beadle, took the youthful Society in hand, and when he had us on the anxious seat, in the town hall, he began in good old Presbyterian style to catechise us—not on "What is the chief end of man," but "Where do you live? What kind of fruit do you grow? How do you cultivate your stock? Where do you buy and sell to get gain?" When he spoke of apples, A. M. Smith was on hand to reply; of pears, Mr. Holton, of Hamilton, took the floor; and when, at a later date, of grapes, Mr. Haskins, of Hamilton, ably discoursed on the fruit of the vine; but like MacKenzie, of '37, he did not reap a very rich reward from Navy Island. Mr. W. H. Mills, of Hamilton, also gave us much information on the plum, but time would fail me to tell of Messrs. Bruce, Leslie, Arnold and others whom the fruits and flowers of Ontario praise, except to add that the best wine was kept to the last, when our worthy Secretary, Mr. Beadle, would sum all up and add his own experience.

The Society, in those early days, was smaller and more sociable than it is possible for it to be in these days, when the meetings are so large. Often we were all invited to dine with one of the members, and as the wives often accompanied their husbands, to aid in testing the flavor of the new fruits, acquaintances were formed which we love to remember.

NOTES ON STRAWBERRY CULTURE.

By L. Foote, Nepean, Ont.

AS there has been much written on the culture of the strawberry, one almost despairs attempting anything further, yet as one man's experience often proves and confirms another, and a relation of it serves to encourage others, there seems to be a partial excuse, at least, for humbly setting forth "what we know about strawberry culture." Indeed there is a need of more stimulating knowledge to be circulated, to excite in the minds of all land-holders (be their holdings large or small) a proper appreciation of the value of the humble, useful little fruit, the strawberry. How much health and comfort is the result of a free use of its fruit, can only be known by a fair trial, and if many who spend much time and money frequenting seaside and watering-place resorts, would retire to the quiet country on a few acres of land, and spend their time in the healthful exercise of gardening, fruit raising, etc., and eat the produce of their honest toil, how much more solid comfort would they take, and both regain and retain that much-to-be-prized boon, health !

One may safely express a belief that in giving the strawberry to man, the Creator of all good intended the moral lesson of humility and usefulness, for surely it teaches those qualities in a very marked degree, and anyone who loves to draw from nature themes of praise and thanksgiving, can find rich resources in the strawberry family to draw upon for that delightful pastime.

Fruit culture should not be stimulated by a love of the almighty dollar, but by a proper appreciation of its intrinsic value ; by a love of the beautiful in Nature and of Nature's God ; by a deep desire to search out and bring to light the hidden resources that lie wrapt up in the great reservoir of creative power ! What a range of unexplored experience remains to be developed in the great field of fruit culture ! Every year brings forth fresh attractions in the scope of variety, and yet "Hills peep o'er hills, and Alps on Alps arise," in the great arena of effort, to add fresh interest to the almost boundless stock now in existence, and manipulated by the active efforts of zealous fruit fanciers. All this can be said without extravagance, and when we take into account the different *varieties* of the different *kinds* of the great fruit family, we are almost lost in the contemplation of the field spread out before us. There is no danger of the interest in fruit culture waning. When we think of what remains to be surmounted in the introduction of suited varieties into localities not yet favored with fruit privileges, and when we consider that the strawberry will thrive where other kinds of fruit must fail, the thought adds additional interest to its culture, and serves to stimulate efforts to spread its usefulness. Many will spend money in efforts to cultivate the larger kinds of fruit, and perhaps get discouraged

when their efforts fail, while if they would pay more attention to strawberry culture, and other small fruits, they would not only have abundance for their own use, to preserve and can up for winter, but a surplus to send to market. Especially in a northern climate may this thought apply, and we may earnestly urge, with propriety, upon everyone possessing a few square rods of land, to try a hundred strawberry plants as a test whether he can or not add a delightful luxury to his table, and have in his garden objects of interest well worthy his attention and care. And then if he has a sociable friend upon whose stock of good humor and conversational powers he wishes to draw, let him invite that friend in and set him down before a dish of strawberries and cream, and if he has entertainment in his nature, out it will come!

By this time every well regulated garden has gone into winter quarters, and for fear we should have an open winter (the hardest on the strawberry), all the newly planted plants should be well covered with some kind of loose litter as a winter protection. As I need what straw I raised to feed the cows on this winter, I am using tomato tops, bean straw, loose corn leaves, evergreen boughs, etc., etc., as a protection for the strawberry beds. Forest leaves, where they can be had, are a good substitute for straw, as they work into the ground easily the next year. I believe a dry season more favorable for the pistillate varieties, as the pollen is more easily transmitted from their staminate neighbors in dry weather than in wet. I remarked that the Manchester, for instance, was not nearly so attractive a berry the past summer that it was the year before, and as this last year was much damper than the previous one during the strawberry season, I have thought that the wet weather was against it for the above named reason. Though the matted row system is the best paying one in which to grow the strawberry, the hill system produces the finest specimens. It *pays* to keep the weeds down, and runners well cut, that the plants may stock up well for producing fine fruit. The two "Jessie" plants sent me a year ago last spring from the F. G. A., have multiplied in a marked degree. I set out nearly three hundred new plants from them in October, and have more to set in the spring. The "Jessie" bears out well its mooted character. The culture of the strawberry is much on the increase in the neighborhood of Ottawa in the past two years. I believe the stimulus afforded by what has been done on the Experimental Farm, is going to be profited by largely, and well it ought to be. As agriculture is the mud-sill industry of the nation, anything done to promote its interests and stimulate its workings is effort in the right direction. The amount appropriated by the Government to promote the agricultural growth of the nation is very small compared to that appropriated to the carrying trade in building railways and other kindred enterprises, and surely the farming interests have a strong plea in their behalf to call out aid from "the powers that be" to assist in distributing grains, seeds, fruits, etc., among the farmers of the Dominion of Canada.

II.—LETTERS FROM RUSSIA.

By Jaroslav Niemetz.

THE ROSTOV PEA.

THE Russians are very fond of roasts served with sweet dried peas, and, indeed, of the latter in many ways. A variety under the name of the "Moscow," is grown in large quantities in Russia. The kitchen gardeners of Rostov, a town of the Jaroslav Government, are occupied with the preparation of these dried peas, and for this they have a native species, which is very sweet. This species, known as the Rostov Pea, is the very best for drying, being the sweetest of any European kind; even the English Marrowfat, or any other of the foreign kinds, are found to be much its inferior. Besides its excellent flavor, it is very productive and hardy, as are all Russian vegetables.

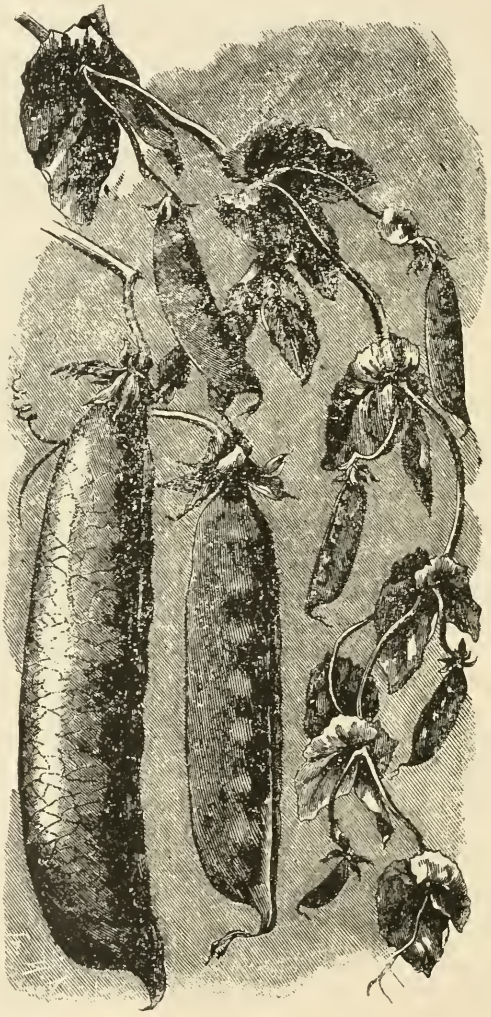


FIG. 4—THE ROSTOV PEA.

I will describe the Russian method of drying, and would advise all American ladies to give it a trial. All the young peas, before they are over ripe, are taken out of their pods, and put into a basket, which is speedily plunged into a cauldron of boiling water, and left for a few minutes. After the first plunging, the basket is taken out, shaken up, and then again plunged in. This is again repeated the third time. After this, the basket is plunged into cold water, and when taken out the peas are put on linen cloth, in an absolutely dark place, until they are nearly dry. Then they are put for final drying in a hot bakery. Any one having an evaporator can use it for this purpose. It must be remembered that for preserving the

green color, which is the beauty of dried peas, the drying must be done in a dark place. For trials, on a small scale, a sieve can be used in place of a basket, and a large pot in place of a cauldron. I now send you a sample lot of the Rostov Pea, and if the members of your Association wish it, I can send you some more.

CRIMEAN APPLE "SYNAP."

The "Synap" is a very ancient Tartar species, propagated in large quantities at Crimea, where there are large orchards, some of them one hundred acres in extent, and Crimean orchardists prefer it for profit to all French Noble Reinettes. Crimea produces one million pounds (one pound equals 36 kilogrammes*), and this quantity always sells at good prices in the markets. There are three varieties, all somewhat resembling each other in shape, which is oblong, viz:— 1. Kara Synap, which is red, and of poor quality; 2. Sary Synap, which is the most widely cultivated and is perfectly hardy; 3. Kandyl Synap, which is somewhat larger and more handsome than the preceding one, but is not so hardy (see fig 5.). The color of the Kandyl and Sary Synap is remarkably beautiful, being white at the stem, and the remainder yellow with a red blush on the sunny side. The skin is lustrous, the flavor particularly pleasant and aromatic, so much so that the fruit may be eaten while yet immature. The fruit is harvested about the end of September, and ripens at Christmas, but will keep until the new crop is ready. At St. Petersburg, Moscow and Riga, in the month of May, when there is no other apple to be seen in the windows of the shops and in the markets, the Synap is to be found quite fresh, There are often samples of the Synap to be seen which have been kept two years.

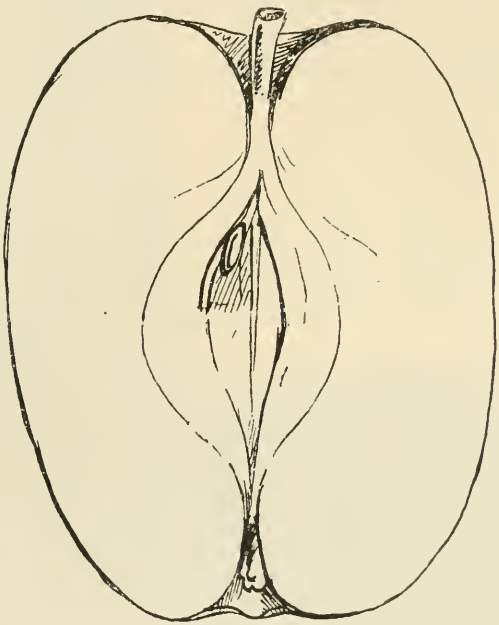


FIG. 5. KANDYL SYNAP.

For firmness and consequent adaptability for transportation in large quantities, I do not know its equal in Russia, or indeed in all Europe. How it will stand shipment is proved by the fact that when there was no railroad

* 1 Kilogramme=2.20 lbs.

in Russia, the Synap was exported on carts from Crimea to the Siberian towns, Perm and Archangel, a journey which occupied from three to four months. Another good quality of the Synap is that it never rots. The tree grows in a pyramidal shape, like the Conifers, yields very large crops annually, and thrives best in moist soil.

The question may arise, Why do I describe a kind, the origin of which is in Southern Russia, where the temperature is never lower than 10 degrees (Rea)? The Synap has been planted at the north, and has proved its hardiness during the last severe winter, when only the Atonovka, Anis, Duchess and a few other kinds escaped, while all others were frozen to the roots. Thus, the Synap remained uninjured when the temperature was 20 degrees (Rea). It is said, however, the fruit is neither so aromatic nor of so handsome a color at the north. Perhaps so, but this apple, growing equally well at the south or at the north, will prove an excellent variety both in Canada and in the United States.

I send you scions for testing, both of the Sary and the Kandyl Synap.

THE FOXGLOVE AS A BORDER PLANT.

WILBUR F. LAKE, BUFFALO.

THE common Foxglove, *Digitalis purpurea*, has long been known in our grandmothers' gardens as a meritorious, hardy plant, but has fallen out of popular favor in the rush and craze for bedding plants. Not only has this fine subject been grossly neglected, but a multitude of other old-time favorites, many of which are now so improved by the European growers that we would scarcely recognize them in their new forms.

There are several greenhouse shrubs which have, in old books of then the best authorities, been classed as *Digitalis*, are now found under their proper headings, but the common garden Foxglove, of which reference is made in this article, is a native of Central Europe, and popularly known as Witch's Fingers.

In Europe also has the plant been neglected, but it is now coming again into general culture, and exciting much interest on account of the magnificent new forms which have developed in the hands of those making a specialty of the plant, showing that it is not an exception to the ordinary in plants when given liberal cultivation and careful, intelligent selection. In the common form we really did not have enough range of color to warrant an extensive planting, and it may be due to this that the plant has been allowed to drop into the background, but now varieties appear having the recommendations of freedom of flowering, robust growth, and individual blooms of great substance, bold form, and wide range of beautiful colors

and shades. One form that is always admired, either on the plant or cut, is the pure white with purple spots on lower portion of the bell-shaped bloom. So great has been the improvement in size and shape of the blooms that they compare very favorably with the improved Gloxinias, which they considerably resemble in this respect. For the present perfection of the Foxglove, we have to thank the French nurserymen for their untiring efforts in selecting and hybridizing until perfection be reached.

The best use, no doubt, to which the Foxglove may be placed is in the border, as we often see the Hollyhock now employed with evergreens as a background. A bold clump thus placed and grown in greatest health gives us a change and one which will be greatly admired.

Generally speaking, such tall growing things are best kept at a distance, though well arranged clumps may be used with great effect in a conspicuous place, pretty well forward occasionally, but it is necessary to give the matter of such a location

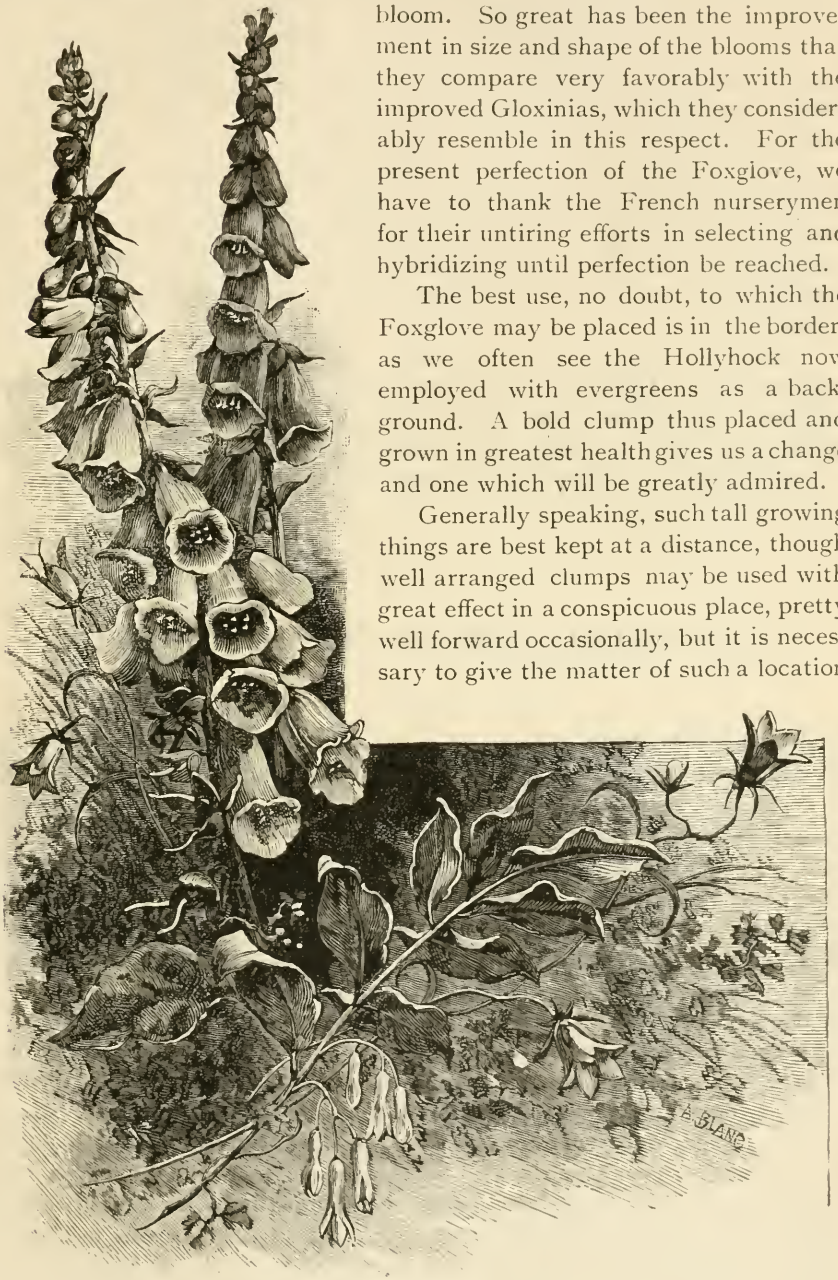


FIG. 6.—FOXGLOVE.

considerable study, as it will mar one's grounds if not properly placed.

One great advantage of the Foxglove is that seedlings come up of their own accord in countless numbers, where all the flowers are not cut, so that it is only necessary to do the thinning out and transplanting in order to keep up the supply. However, there is one objection, that is, the losing of many of the finest kinds, as one cannot tell what the seedlings will produce unless grown in separate clumps of single colors.

The wild garden and our parks afford excellent opportunities for introducing the Foxglove, and when once established, one need not fear of its becoming much crowded out by the other subjects. While its beauty and appearance are so out of the ordinary growth, its time of flowering will be eagerly looked for each season when once the finer introductions become known.

A package of mixed seeds of the latest hybrids may be had for 50 cents of some of the larger seed houses, and will give nearly all of the desirable varieties. Sown first in a pan or box, and afterward transplanted to 18 inches apart, they will give a fine display.

The best soil is a loose loam, thoroughly enriched and well drained.

ARUM MACULATUM: OR THE SPOTTED ARUM.

By Hermann Simmers, Toronto.

I WILL endeavor to give a few brief points, not only to encourage the culture of the Arums, but also to further the knowledge of their excellence, and to try and persuade the readers of THE HORTICULTURIST to study the habits of these and other plants.

The "Spotted Calla," or *Arum maculatum*, is naturally abundant in most parts of Europe, growing chiefly in moist, shady woods and under hedges. This variety having been brought to such perfection as a house plant, differs, of course, in size from the wild variety, and has been so much improved that it grows nearly twice as large as the wild variety; the leaves are densely spotted with small white blotches, giving it the appearance of a sickly plant, but still having a pleasing effect, when understood by the culturist. It has a tuberous, perennial root, its leaves are all radical, on long stalks, strongly arrow-shaped; the root has a burning acrid taste, which, however, it loses in drying or boiling. In a fresh state it is a drastic purgative, too violent for medicinal use; and, indeed, it, as well as the leaves, is an active poison, yet a nourishing farina is prepared from it, after the acrid juice has been removed. A cosmetic is made from the plants in France, and in Switzerland they are used as a substitute for soap. Aside from these technical points, I will proceed to describe their culture in the house or con-

servatory. I do not think they will ever become as popular for house culture as the *Richardia Æthiopica*, or Egyptian "Calla" Lily, but being just as easy to cultivate, I see no reason why every flower lover should not have one or two in his collection, the culture being the same as for the latter.

The bulbs are planted in the fall in a seven inch pot, the soil used being a mixture of sand, loam and well rotted manure, in which place the bulb, and after watering freely, place the pot under a table or bench in the conservatory, not necessarily excluding the light entirely. They will appear not to make any progress for at least five or six weeks, just as in the treatment of hyacinths, tulips, and other winter flowering bulbs. After having remained under the bench for the required time, they may be brought to the light and freely watered until they have finished flowering. Previous to blooming a liberal amount of liquid fertilizer may be applied, which will greatly improve the flower, as well as brighten the white spots on the leaves.

After flowering allow the plant to grow for at least six or eight weeks longer, when the bulb may be taken out of the pot and exposed to the sun until thoroughly dried, when they will be in proper form for replanting in the fall. If the few details mentioned are closely adhered to, a very interesting growth may be had for the amateur's pains, as they are distinct from other plants in that the leaves and flower are both exceedingly pretty.

CAN PLANTS BE ACCLIMATIZED?

By P. E. Bucke, Ottawa.

THE above question is one which ought to be answered for this locality, as well as for other parts of Canada. If it can be answered in the affirmative, then we could probably grow in this Dominion all the tropical and sub-tropical perennials, trees and shrubs whose fruit and flowers are so attractive to the eye, and so pleasing to the palate. If in the negative, what time, labor and expense would be saved in planting varieties of the vegetable kingdom unsuited to the locality it is desired to grow them in, when a thermometrical test would settle the whole question.

A careful examination of the works of scientists, who have done much in experimenting in this subject, and from a little practice of my own, the fact has been disclosed to my entire satisfaction that habitual attempts to grow plants in a greater degree of cold than that in which their life was destroyed at the first attempt, however much prolonged, produced no effect on such as are propagated by buds, grafts, layers or cuttings. The hardiness which is found to exist in plants is innate and inherent in themselves, and appears to consist chiefly in the power of the sap-cells to contract and expand readily, under different degrees of temperature. One of the peculiarities of the hardiness of vegetable forms is that many of our frost-resisting plants have come to us from warm climates, where they are found in their wild

state, such for instance as the Japan lilies, which, in suitable localities, bloom profusely. In this locality, where there is an average of over forty days during each winter when the glass sinks to zero, and not infrequently to thirty degrees below that point, certain classes of plants which can be artificially protected during severe winter weather, can be cultivated with success as far north as the summer season is sufficiently lengthy to open its flowers, or ripen its fruits. Allusion in flowers is made to the rose, and in fruits to the grape, the blackberry, etc. One would suppose that any plant so protected would succeed, but many attempts to cultivate the peach by artificial protection has invariably failed.

With regard to the hardiness of some cultivated fruits, it must be borne in mind that soil and situation have a good deal to do with the power of the plants to resist cold. Often when the border line of the freezing limit is reached, a well drained soil and good cultivation will give such robustness to vegetation that the plant defies the icy air which whistles through its branches. As a rule the vegetable kingdom is as much opposed to wet feet as are mothers in regard to their young offspring. It is certainly true that many of our domesticated plants do produce seedlings hardier than their parents, such as the plum, the grape, or the apple, but this after all may be, and probably is, a relation to the original stock, such as the wild vine, the crab, etc., so that after all we must conclude that the weight of testimony is against the theory that plants may be made to resist a greater degree of frost than the original hardiness which exists within themselves when first procured in a wild state.

RICHARDIAS.

AMONG the many favorites for the window garden, there is perhaps none which is more generally grown in Canada than the one we call Calla Lily. Its large sagittate leaves, and its pure white spathe thrown back to disclose a bright yellow spadix, fully covered with flowers proper, make it a rich ornament to any window. No funeral decorations are thought complete without a liberal supply of the African lilies, and the length of time they will keep in a fresh condition is an additional point in their favor.

It will be a surprise to a good many to be told that the name "Calla," by which this flower is commonly known, is a misnomer, although perhaps too wide-spread to be corrected, except among florists. The name belongs to another species of the Arum family, viz., *Calla palustris*, or Water Arum, a low perennial herb, which, although originally introduced from Europe, is quite common in the northern United States in boggy places, but is not worthy of a place in the window garden.

The *Richardia* takes the name from L. C. Richards, a French botanist, and is a genus comprising five species of marsh plants, natives of South Africa, four of which have been introduced for greenhouse cultivation.

They are of very easy cultivation, the most important point being to give them a plentiful supply of water during their growing season. They will succeed best in a rich soil, made of a compost of good loam and cow manure in equal parts.

Richardia Africana is the proper name of the variety above referred to



FIG. 7—VARIEGATED CALLA, RICHARDIA ALBO-MACULATA.

as most grown by amateurs. It is a winter and spring bloomer, and is usually allowed to rest in the summer months, by turning down the pot on its edge and leaving the plant without water; or it may be planted out and left without care until early fall, and then potted.

R. albo-maculata, or the white spotted Calla, is by far the best of the other three for amateur cultivation. This one is highly prized for its foliage, which has a variegated appearance, while its greenish-white spathe, though smaller than that of *R. Africana*, is still very interesting.

CANADIAN APPLES IN IOWA.

By J. L. Budd, Ames, Ia.

AS I lay down the ever welcome CANADIAN HORTICULTURIST, I will say that in 1879 we put in orchard all the Canadian apples noted by the late Robert Burnet, and a number of others exhibited at the American Centennial in 1876. Of them all, the Winter St. Lawrence and McIntosh Red have proven hardiest in tree, most perfect in foliage, and the best bearers of well developed fruit. The others have failed wholly or in part from sun scald, blight or winter injury.

The two named are not as hardy as Wealthy, but I believe in our climate they are somewhat hardier than Fameuse, and the fruit does not scab to any serious extent as does the Fameuse. I believe over large areas of our State, south of the 42nd parallel, they will prove profitable.

The Montreal Peach I do not believe originated in Canada or this country. It is a true Russian in tree and fruit, and much like some we have fruited. It is a perfect ironclad with us and a fair bearer of excellent and handsome summer fruit for home use. For market it is too perishable and tender in flesh.

ROSE NOTES.

By F. Mitchell, Innerkip.

FASHION or caprice affect the popularity of almost any other flower but the rose, but a perfect, well-grown rose can always command admiration. This season, as in all the past, the rose has been in popular estimation the flower of all flowers. The heavy frost of the 29th of May very much thinned the first bloom of the out-door rose, and later the black spot again made its appearance, but in spite of these drawbacks there was, throughout the whole season, a great amount of fine bloom produced.

I did not experiment as much as usual with new varieties this past season, and of those I did, I did not get bloom enough to speak with assurance of their merits or demerits. As I have before stated, it is not wise to pronounce positively on any new variety with only one year's acquaintance, and perhaps but a very few blooms at that. Varieties vary greatly different seasons. Instancing this I may mention that that grand old variety, "La France" was this season not even a third-rate rose, while "Ulrich Brunner" (not usually very good) this year produced magnificent blooms. Of those that have been out two seasons, "Mrs. John Laing," of which I hoped much last year, has proved itself a very valuable rose. The best of all the later

arrivals, "Dinsmere" (which was sent out by Peter Henderson with such a flourish of trumpets, as something beyond anything ever before produced) is a fairly good and very free blooming red rose, but I have as yet failed to detect any difference (save in name) between it and "Madam Charles Wood," introduced nearly thirty years ago.

The black spot has again seriously interfered with propagation by cuttings. The leaf, when affected with it, drops before the cutting is rooted, and then the chances are that the cutting will not root at all. I have as yet found no remedy for it, but as it has only been here two years, it may again disappear. It is not altogether confined to the rose, but affects currant and other leaves.

In spite of a few minor discouragements like these, the season has, on the whole, been a satisfactory and encouraging one to the rose culturist.

THE CHRYSANTHEMUM CENTENARY.

THIS was the great event of the month of November in Horticultural circles in England, and was celebrated during the first week of November at the Royal Horticultural Society's Gardens at Chiswick, by both a conference and an exhibition. At the latter it was the aim to collect together as many of the known varieties as possible, and the number of which may be imagined when it is stated that there are no less than 900 varieties grown in the Cheswick Gardens alone. At the conference some valuable papers were read, on such subjects as the History of the Chrysanthemum, Progress in its Culture, New Varieties, etc. The beginnings of its cultivation in China and Japan are lost in antiquity, but about two hundred years ago it was known in Holland, and about one hundred years ago three varieties were brought into England; and of these, a purple one was at once recognized as a valuable autumn flower. Constant surprises have been brought forward ever since, either through fresh importations, or through hybridization, until the interest in this flower has become a perfect furore, and almost every form and color may be hoped for.



FIG.—8. MRS. ALPHEUS HARDY.

The latest surprise is a Japan novelty, known as "Mrs. Alpheus Hardy," named after an American lady of that name who showed some kindness to a Japanese student of Harvard College, and who in return sent to his native land for some Chrysanthemum roots as a present for her. Among them was this variety. At first view it appears to be an ordinary incurved Japanese variety, but on closer inspection it is seen to have numerous coarse hair-like excrescences on the reverse of the florets, which it is hoped may prove a fixed feature, and give rise to kinds with even a greater degree of hairiness.

A GREENHOUSE FOR AN AMATEUR.

A BALTIMORE correspondent of *Popular Gardening* furnishes the following description of a cheap greenhouse, which he had found most satisfactory, and as it furnishes a reply to one of our correspondents, we give it in our pages also.

Size of building 9 x 16 feet, being a lean-to against the dwelling. Cost $28.50 complete, including the heating contrivance, which consists of kerosene oil stoves and drum with connecting hot-air pipe about twelve feet in length and three and a half inch in diameter inside measure.



FIG. 9--A CHEAP GREENHOUSE.

The average cost of heating is but ten cents a night. A pipe leads from over the lamps to the outside of the building to conduct away any smoke or smell from the lamps. This pipe turns upwards outdoors, and is protected with a cap-like cover to keep the rain out.

The plan of putting up the structure was this: First, six 4 x 4 inch posts were set in the ground, resting on stones with some smaller ones between, and to these for making the sides, boards one foot wide were nailed lengthwise. Over these horizontal boards a second layer was nailed, but to have them run up and down, and with strips nailed over the joints. Two coats of paint were given to the exterior. The inside surface of the wall was covered with heavy building paper, an eighth of an inch thick. Altogether this wall is so warm that during the great blizzard, which last March (1888) visited our correspondent's region, a night heat of 47° was easily maintained.

Concerning the plan of heating with oil stoves, Mr. Emmerich says that in his case it is entirely satisfactory. Two small stoves, made by the Kerosene Oil Stove Co., and having two four inch wicks each, and an oil receptacle containing seven quarts to each. The drum from which the

hot air pipe extends, is situated upwards from and between the lamps. While the 3½-inch pipe is effectual in conveying heat to its further end, still Mr. Emmerich is of the opinion that if it were a size larger it might be even more satisfactory.

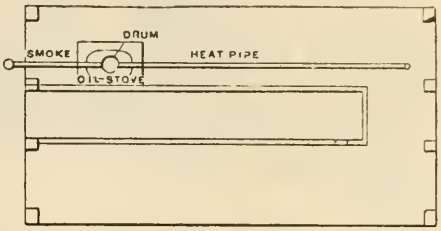


FIG. 10. PLAN OF GREENHOUSE.

Regarding oil lamps smoking when put to such a use and of which some complain, no trouble has ever been realized. The lamps are kept perfectly clean and nothing but the best 150 tested oil is used. Care is taken, however, to not have them turned up too high at any time, for if they were, naturally they would smoke. By means of the pipe leading outside all smell of the burning oil is removed.

Concerning the general success of this house, the writer says he wishes our readers could see the beauty and perfection of the many plants grown within its walls. Still it must not be forgotten that the general attention bestowed on plants has at all times quite as much to do with their success as the providing of sufficient heat and light for their wants.

THE FARMSTEAD LAWN.

FAMILY games, the out-door games, of summer, must be provided for. Everybody, almost, plays croquet, and lawn tennis is rapidly becoming an equally popular game. The boys also want a place to play ball, and at least the small boys can be allowed a chance upon the small area reserved for the two home games referred to. These ought, of course, to have as level a spot as possible, with trees around it for shade, but not too near. Seats may be provided beneath these trees for weary participants or elderly on-lookers. It is well worth while to take considerable pains with this play ground, so that the games may be played in a satisfactory manner, and skilled players be satisfied with the facilities for displaying their accomplishments. The levelling ought to be done with care, and a fine, thick June Grass sod secured by good preparation of the ground, liberal seeding, and a regular but moderate use of the lawn mower. These things take time; but "the labor we delight in physics pain," saith the poet, and both the boys and the girls of the family will willingly help to prepare the ground devoted to social recreation and the entertainment of visiting friends and kinsfolk. All that I have indicated can be carried out nicely on the space of a single acre.—*From "Some Thoughts on Lawns," in Vick's Magazine for November.*



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

A PROSPEROUS NEW YEAR.

THIS heading expresses the wish of THE CANADIAN HORTICULTURIST to its many readers. And in line with the wish it shall be our earnest aim to aid our Ontario fruit growers in every possible way to that success which their industry, coupled with a favorable soil and climate, so well merit.

We again appeal to all our readers to aid us in our object by contributing items of their experience, criticisms on the subject matter of the journal, or interesting notes of any kind bearing upon our work.

Photographs also, of special trees, shrubs, fruits, lawn views, etc., are also solicited, and if suitable will be engraved and used as illustrations.

A JAPANESE FLOWERING APPLE.

THE *Garden and Forest* gives an engraving of a novelty in the ornamental line, in the way of a flowering apple, which was brought from Japan by Von Siebold, and is being sold as *Pyrus malus floribunda*. The beauty of its delicately colored masses of bloom is beyond description, and no small tree is better suited to be planted on the margin of a large shrubbery, or as single specimens on the lawn. The fact that it is perfectly hardy is important to us in Canada.

THE AMERICAN HORTICULTURAL SOCIETY meets in Austin, Texas, on Monday, the 17th day of February, 1890.

"WHERE FLOWERS BLOOM" is the title of a column in the *Woodstock Sentinel Review*, describing a visit to the grounds of our ex-director for Agricultural Division No. 9. It seems that Mr. F. Mitchell has adopted floriculture as a profession, and is becoming very successful in his chosen line. His three specialties are the rose, the dahlia and the gladiolus. Of roses alone, he has now about one hundred varieties in cultivation.

QUESTION DRAWER.

THE PEARL GOOSEBERRY.

Mr. Wm. Saunders, of the Experimental Farm, Ottawa, writes that he believes this gooseberry was a cross between Downing and Ashton's seedling, an English variety. With regard to its size, Mr. Smith says it will not average double the size of the Downing, although it is considerably larger, and much more productive. We should also credit the present ownership of this berry to Messrs Smith and Kerman, and not to Mr. A. M. Smith.

KEEPING CABBAGES.

SIR,—Please inform me the best way to keep cabbages through the winter.—AN ENGLISHMAN, Bracebridge.

Reply by A. Gilchrist, West Toronto Junction.

Cabbages are kept successfully by putting them into bunches, covering lightly with soil, in the driest spot in the garden. Some gardeners put the roots up, that the leaves may shed the water off better, but the frost runs down the stem and sometimes injures them. I prefer the root down. If only a few are to be kept, a narrow trench will do; if a quantity better make the trench four or five feet wide, cover with a few leaves or straw and put on about three or four inches of soil. A little frost will not injure them. If kept too hot they will get yellow.

GERANIUMS KEPT IN THE CELLAR.

SIR,—I have heard geraniums may be wintered successfully in a frost-proof cellar; if this is the case, kindly tell me how to manage them in the right way, and oblige.—AN ENGLISHMAN.

Reply by A. Gilchrist, West Toronto Junction.

Geraniums can be kept in a light cool cellar. Put them in boxes or pots; place them as near the cellar window as possible; give very little water, In the spring take cuttings of them and throw the old plants away.

SEEDLING GERANIUMS.

SIR,—I have a very nice seedling geranium about three years old, which has never flowered, and shows no sign of doing so. Can you give me a receipt to make it flower. I slipped it some two months ago, but that has made no difference.—D. A. FERRIER, Fergus.

Reply by A. Gilchrist, West Toronto Junction.

Florists wishing plants to bloom keep them pot-bound. If the seedling geraniun has not bloomed at one year old, it will very likely be a shy bloomer, and not worth keeping.

MIXING VARIETIES.

1. Will you please tell me when different kinds of strawberries are planted in rows side by side, if either kind will run out, that is, will the pistillate kinds produce staminate flowers, and the staminate kinds produce pistillate flowers; if so, which kinds are most likely to get mixed in the blossoms, the pistillate or staminate variety?—E. ROBINSON, *Glendale, Ont.*

The fertilization of one blossom by another will have no effect upon either flowers or berries of the growing plants. The effect will only be observable in the seeds produced by the flowers so fertilized, and will be seen in the seeds only.

OPEN LETTERS.

SMALL TREES *vs.* BIG TREES.

DEAR EDITOR,—I take pleasure in sending you the enclosed clipping written by Mr. T. C. Robinson, of Owen Sound. His true reasoning is in accordance with nature and botany, and also quite agrees with my little experience of the last four or five years planting of trees.

SMALL TREES BEST.

"When a man wants an apple tree, he wants a big one." I suppose this is true of every customer who orders, unless he has had considerable experience. We all like to realize on an investment as soon as possible; and the very look of a big tree makes a man think he is so much nearer the large luscious fruit than if he set out something about the size of a good raspberry bush. I wonder if it is any use trying to combat this intuitive idea. Let me try. My friend of the BIG TREE, you know, of course, that it is not mere *timber* that produces the fruit; but both *timber* and *fruit* depend on the *roots*. Now here is a little tree, with stem as thick as your finger and eighteen inches long, to examine beside your *favorite*. Now what difference do you see in the roots of the two? No nurseryman living can afford the time to dig up large stock so thoroughly as to save the full length of the roots, at ordinary prices. No, a man at each side quickly thrusts the spade down about a foot from the trunk, then *pry*, *twist*, *shake*, and there is your BIG TREE with a few prongy big roots, but the main mass of fine fibrous feeding roots left behind in the nursery! Now look up and down the fine showy trunk; notice what an expanse of *bark*, and consider that unless that bark is kept moist *all summer* by sap coming down from the leaves, it becomes *hide-bound*, and the tree is apt to die. Now see on your fine branches how many many buds there are. Recollect that each bud will try to make a new leaf-covered branch, and that each leaf will evaporate moisture and help to pump your tree dry, and then ask yourself how those few prongy roots are ever going to manage to send out enough small feeding roots to support the enormous demand for sap, by the time the hot dry weather rushes down upon us. Is it any wonder some trees die every year? Isn't it a great wonder so many live—though stunted and sickly?

"But now look at my modest *little tree* that was scorned before; see on the short stem, with so few buds and so small an expanse of bark, there is not one-tenth the *demand* for sap that there is in your BIG TREE; while down below, the roots had not time to grow beyond the spade-stroke, and so the fine feeding-fibres are right here ready for business, so that there is capacity for furnishing immediately *ten times the supply* of sap that there is in your BIG TREE. As a consequence, of course, the *little tree is far more certain to live and will be very apt to outgrow the other, and come into bearing first.* Now add to all this the lower price of the small stock, and what is your conclusion?"

And I beg to add that small young trees have, specially to our very cold climate, the great advantage to be more easily winter protected; just before hard frost, bend them carefully, for fear of breaking, to the ground, putting a stone or a piece of wood on the head to keep it there; then throw over a few branches of evergreen or some such stuff to gather snow. Then in the spring they are all right and fresh, and get more easily used to our rough climate.—L. PASCHE. *Bryson, P. Q.*

CATALPA SPECIOSA.

Editor Canadian Horticulturist.

SIR,—In the issue of your valuable serial for November of the present year, L. H. Kirkly condemns the Catalpa speciosa as specially liable, on account of the large size of its foliage, to be broken down and ruined by the wind.

I have grown and observed this tree for many years, and have suffered more or less in the manner he describes. My trees are near the bluffs, on the east shore of Lake Michigan, and fully exposed to the strong winds from the lake, which occasionally nearly destroy the foliage, not of the Catalpa only, but even of the peach and of exposed forest trees, especially in early autumn.

I have several Catalpas in cultivated ground, which make strong annual growths and which have suffered more or less seriously in the manner described. I have also a much greater number standing in ground not under tillage, which have made moderate, healthy, annual growths, and not one of which has lost a branch from this cause, It seems a pity that so beautiful and vigorous a tree, for ornamental purposes, should be condemned and cast aside, if, indeed, so easy a remedy as mere neglect shall suffice to render it acceptable.—Very respectfully, T. T. LYON.

THE SUMMER FROST.

SIR,—In my letter of Dec. 4th last year, I gave you in brief detail a statement of all the plants I had received from the Ontario Fruit Growers' Association to date, and the results of my experience with them, and hoped to have been able to give you a correspondingly satisfactory account of the results of the past summer; but am sorry to have to report a very different state of affairs. The frost of the 28th of May last did a serious amount of damage to the fruit crops of Ontario. Few, if any, localities escaped harmless, while to the Province generally the effect of it was most disastrous. Doubtless it was felt more severely in many places than in our favored Toronto; but, even here, in most cases, it was ruinous to orchards and gardens. I lost of my grapes four-fifths, strawberries two-thirds, raspberries three-fourths, apples two-thirds, all my plums—though I believe the curculio had something to do with this, and the portions I did save were inferior in quality and deficient in quantity. I had good yields of gooseberries, currants—red, white and especially black. Of these the quality was exceptionally fine; also blackberries.

In Canada, early springs are inevitably injurious to most of the products of the soil, and I sincerely hope it will be long before we have another spring like that of the present year.—Believe me, yours very truly, J. L. THOMPSON, *Toronto.*

GOOSEBERRY MILDEW—JOHN HOPPER ROSE.

SIR,—I notice complaints about mildew on gooseberries. I have "Downing" and "Crown Bob," and have never seen a speck of mildew during the last ten years. I always plant them where they can get plenty of sun and air, and never apply any manure except the house ashes from hard wood.

I have had "John Hopper" rose for several years. It is a splendid rose and flowers all the summer. I first saw it on a garden wall in Scotland.

Wishing you the compliments of the merry season, I am, yours faithfully, A. D. FERRIER, *Fergus, Ont.*

THE SWITZER APPLE.

SIR,—The Switzer apple that I received has had fruit on it two years. The fruit is very good and a good size. It has the flavor of a peach when ripe. If it is let remain on, it changes its flavor. It is as hardy as the Duchess, and ripens the same time. It does well on clay and is one of the best summer apples, and a strong grower.—S. GREENFIELD, *Archville, Nepean, Carlton Co.*

THE GOOSEBERRY MILDEW.

SIR,—I am deeply interested in the gooseberry discussion. Will not the fact that the wild gooseberry mildews here, even worse than the cultivated varieties, and worst, in the bush, give some light on the cause of the disease—and this was unknown only a few years ago. I have no doubt, therefore, that heat and dampness does aggravate the disease, but doesn't seem to cause it. Industry with me, not only have the fruit destroyed, but the bushes are killed. Shall remove what are left in the spring to a high clay ridge.—S. SPILLETT, Nantye.

A FEW LINES FROM MR. GARFIELD

SIR,—It was with sincere regret that I found it necessary to take so sudden a leave from your meeting at Windsor. I was greatly interested in your discussion, and it would have given me great pleasure to have remained until the close of the convention; but this is a busy world, and I am one of the busy people in it. Yesterday our local Horticultural Society met at my house, and, although a rainy day, filled us up to our utmost capacity. We have fifty-one families represented in the organization, and the families attend. One of the most delightful talks yesterday was given by a lady in encouragement of children's horticulture. She explained how seeds, plants and bulbs will increase from the smallest beginning, and illustrated by a case in hand. She took a single bulb of a popular variety of Gladiolus and in the five years, closing with this year, her stock had grown to 5,000 salable bulbs, and 45,000 bulblets. I hope we can, by agitation and example, awaken a thorough interest in this subject. I thank you and your associates most heartily for the cordial reception you gave us Michigan brethren, and trust we may, in the near future, be enabled to reciprocate.—CHAS. W. GARFIELD.

WINE THAT DOES NOT INTOXICATE.

SIR,—As a director of the Ontario Fruit Growers' Association, inquiries have been made of me as to whether there is manufactured and kept in stock by any grape grower in Ontario, a purely unfermented wine, suitable for sacramental purposes. Knowing that Mr. P. E. Bucke, of Ottawa, has had some experience with purely unfermented native wines, we would be pleased to hear from him through the columns of the HORTICULTURIST on the subject.—DIRECTOR, *London, Dec.* 13.

OUR FRUIT MARKETS.

FRUIT EXPORTS OF ONTARIO.

DEAR SIR,—I enclose you a table showing the total exports from Ontario nine years, ended June 30, 1888, value and price per barrel :

Year.	Price per bbl.	Barrels.	Value.
1880	$2 37	32,250	$ 57,248
1881	1 50	99,834	159,118
1882	2 10	90,024	191,160
1883	3 15	47,639	149,962
1884	3 25	12,323	40,047
1885	2 21	62,433	141,951
1886	1 85	102,303	189,837
1887	1 92	141,260	271,595
1888	2 06	226,070	403,587

Total imports into Ontario for eight years ended June 30, 1888, value and price per barrel :

Year.	Price per bbl.	Barrels.	Value.
1881	$1 46	8,147	$11,953
1882	1 82	4,167	7,588
1883	2 49	6,850	17,088
1884	2 71	6,028	16,348
1885	2 10	5,448	11,459
1886	2 00	5,258	10,539
1887	1 99	4,344	8,345
1888	2 34	2,989	7,053

—Yours truly, P. E. BUCKE, *Ottawa*.

OUR BOOK TABLE.

AMERICAN POMOLOGICAL SOCIETY. Session of 1889, containing the proceedings of the 22nd session, held at Ocala, Florida, Feb. 20, 21, and 22, 1889; compiled by the Secretary, Mr. A. A. Crozier, Ames, Iowa.

PROCEEDINGS OF THE FIFTH ANNUAL CONVENTION OF THE SOCIETY OF AMERICAN FLORISTS, held at Buffalo, N.Y., Aug. 20, 21, 22 and 23, 1889; Secretary, Wm. J. Stewart, Boston, Mass.

SEVENTH ANNUAL REPORT OF THE OHIO AGRICULTURAL EXPERIMENT STATION FOR 1889. Prof. W. B. Lazenby, Secretary of the Board of Control, Columbus, Ohio.

DIGEST OF THE ANNUAL REPORTS OF THE AGRICULTURAL STATIONS OF THE UNITED STATES FOR 1888, published by the authority of the Secretary of Agriculture. Part I., June, 1889.

TRANSACTIONS OF THE IOWA STATE HORTICULTURAL SOCIETY FOR 1888. Twenty-third annual session, held at Des Moines January 15, 16 and 17, 1889. Secretary Geo. Van Houten, Lennox, Iowa. Cloth pp. 494.

ANNUAL REPORT OF THE STATE HORTICULTURAL SOCIETY OF MISSOURI, 1889. Cloth, pp. 501. Secretary, L. A. Goodman, Westport, Missouri.

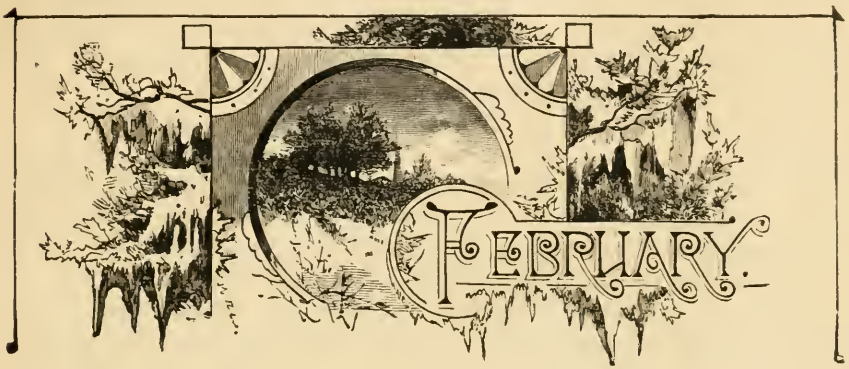
CATALOGUES :—The Idaho Pear, published by the Idaho Pear Co., Lewiston, Idaho, with colored plate of the pear.—Lovett's Illustrated Catalogue of Trees and Plants; J. T. Lovett Company, Little Silver, N.J. —Descriptive Catalogue of Dutch, French and other Bulbous Roots, Fruit Trees, Roses, etc.; John Laing and Sons, Forest Hill, London, S.E., England.—Wm Paul and Son's Catalogue of Roses, Waltham Cross, Hertfordshire, England. — Nursery Trade List for Autumn, 1889, and Spring, 1890; P. E. Transon Bros., Orleans, France.

MRS. ALPHEUS HARDY: OVERHEARD AT THE CONFERENCE.—"Oh, ma, here's a bearded Chrysanthemum !" exclaimed a little girl at the Chiswick Conference the other day. "You should not say bearded, my love; you should call it hirsute." "Her suit, ma ? I see it is named Mrs. Alpheus Hardy. Does she wear a hair suit ?" "No, my child, of course not. I mean to say that the flower is hairy; that is the meaning of the word hirsute." "Well, ma, I can't see the difference between bearded and hairy. I am sure Mr. Barnum would be delighted to get this bearded lady for his great show. What a jolly bit of fun it would be."

THE

Canadian Horticulturist.

VOL. XIII. 1890 NO. 2.



SOME PROMINENT CANADIAN HORTICULTURISTS.—IX.

WILLIAM SAUNDERS, F.R.C.S.

NO APOLOGY, we are persuaded, is required, for substituting for our usual colored frontispiece of some fruit or flower, the photograph of one so highly esteemed by the fruit-growers of Ontario, as Prof. Wm. Saunders, Director of the Experimental Farms of Ontario. Ever since the early days of the history of our Association his countenance has been familiar to us as that of one whose very presence seemed to contribute much to the pleasure and profit of our gatherings. Possessed of remarkable ability for grasping many facts and systematising all into the one harmonious whole, endowed with a fertile brain for divising wise schemes, and withal having a pleasing address coupled with a modest, yet firm bearing, he has advanced from one position to another, without that adverse criticism which so often falls to the lot of those who reach exalted stations.

Mr. Saunders is a native of Crediton, Devonshire, England, where he was born on the 16th of June, 1836. At the age of twelve he came to Canada, and was at fourteen apprenticed to a chemist, a line of business he pursued until quite recently, when called to his present position by the Government of Canada. In addition to his chemistry, he pursued the somewhat allied studies of Botany, Entomology and Horticulture, thus

unconsciously preparing himself for the requirements of his present position. In May, 1863, he published in the *Canadian Journal* a list of 545 named species of plants which he had collected and identified in Western Ontario. In the same year, he took an active part in the formation of the Entomological Society of Ontario, then of Canada, a society in which he has been an arduous worker, as his many papers, both in its annual report and its monthly *Journal* clearly testify. The *Canadian Entomologist* was first published in the year 1868, and in 1875 Mr. Saunders was appointed editor of it, and continued to write voluminously for its pages. Ten years later, our own journal, THE CANADIAN HORTICULTURIST, was first published, its promoters catching the idea, no doubt, from its sister publication.

In 1867, he was elected one of the directors of the Ontario Fruit Growers' Association, and took a very active interest in its prosperity. Catching the spirit of the discussions, he planted largely of fruit and ornamental stock, both for profit and experiment, in the neighborhood of London, and thus was able to speak from practical acquaintance upon the subject of horticulture.

It seemed to be universally recognized that Prof. Saunders was by nature suited to lead, for in 1875 he was made President of the Entomological Society; in 1877, President of the American Pharmaceutical Association; in 1882, of the Fruit Growers' Association of Ontario; and in 1885, Director of the Experimental Farms of the Dominion of Canada.

It does not here concern us to speak of his work as a member of the American Association for the Advancement of Science, as Fellow of the Royal Microscopical Society of London, as Public Analyst of Western Ontario, or as Professor of Materia Medica in the Western University, at London, Ont. It more particularly concerns us to note that it was on the 19th of September, 1882, at an annual meeting of our Association, held in Kingston, that he was made President of our Association, a position he filled until September, 1885, when he was called to his present office.

His able addresses, during that period, are found in our Reports of those years, and are still fresh in our memories, as also is the record of his work in preparing the collection of tender fruits, in a preservative fluid, for the Colonial and Indian Exhibition, which reflected so much credit upon our country, and drew the attention to it of so many intending settlers.

It is not surprising, then, that when the Minister of Agriculture was looking for a man qualified to organize and conduct an experimental farm, that Prof. Wm. Saunders should have been selected; and we, as fruit-growers, regard his appointment as a subject for much congratulation, believing, that in course of time, his experimental work in the line of Horticulture will do much toward advancing the interests of our favorite industry.



EXPERIMENTAL GROUNDS OF "THE CANADIAN HORTICULTURIST."

THE EXPERIMENTAL GROUNDS OF THE "CANADIAN HORTICULTURIST."

SINCE it is the fashion with some of our contemporary horticultural journals to boast of their experimental gardens, in order that their readers may not have it to say that their editors are only bookworms and know nothing practically of gardening, we have thought it wise also to give our readers a glimpse of the Woolverton Homestead and fruit farm, sometimes referred to in these pages as "Maplehurst."

It is winter. The deep snow will prevent our tramping through the orchards, so we will climb the "Mountain" and take a view from there. Yonder is the beautiful Ontario, now ice-bound and scarcely distinguishable from the sky which meets it; and lying between, the orchard of nearly one hundred acres, planted with apple, pear, peach, plum, cherry, quince trees, grapes and small fruits of many varieties. On the west lies the fruit farm of Mr. E. J. Woolverton, President of the Niagara District Fruit Growers' Stock Co., an organization for the sale of fruit in the various cities; and on the east, that of Mr. A. H. Pettit, President of the Lincoln County Farmers' Institute.

The farm was purchased nearly one hundred years ago by the writer's great-grandfather, and formed a portion of a four hundred acre stock and grain farm. About thirty years ago it was used as a nursery of young trees, by Mr. C. E. Woolverton, with Mr. A. M. Smith, now of St. Catharines, as a partner; both of whom also took an active part in the early meetings of our Association, and were among the eighteen constituent members who met for its formation in the Board Room of the Mechanics' Hall, Hamilton, in the month of January, 1859. Latterly it has been entirely devoted to fruit culture and experimental work. The apple orchards are of various ages, some of them nearly one hundred years planted, and consist of about sixty varieties. There are some twenty or thirty kinds of pears grown, the chief among which is the Bartlett, of which variety there is a large bearing orchard. The principal market grape is the Concord, and some eighty other kinds are being grown for trial. The Wilson and the Crescent are the chief strawberries, but there are several out of the forty varieties under test which promise to be more desirable. And so we might go on to enumerate quinces, plums, cherries, blackberries, etc., but enough is already mentioned to give our readers some idea of the practical work of which the results are from time to time given to the readers of the CANADIAN HORTICULTURIST.

SEASONABLE HINTS.

CONVENIENT LADDERS.

A LITTLE forethought during the leisure hours of the winter season will provide many a useful implement for the farmer and gardener. During fruit season it is almost impossible to have a super-abundance of ladders for gathering fruit. In recent volumes we have described several easily made fruit ladders, and now give cuts of one or two others.

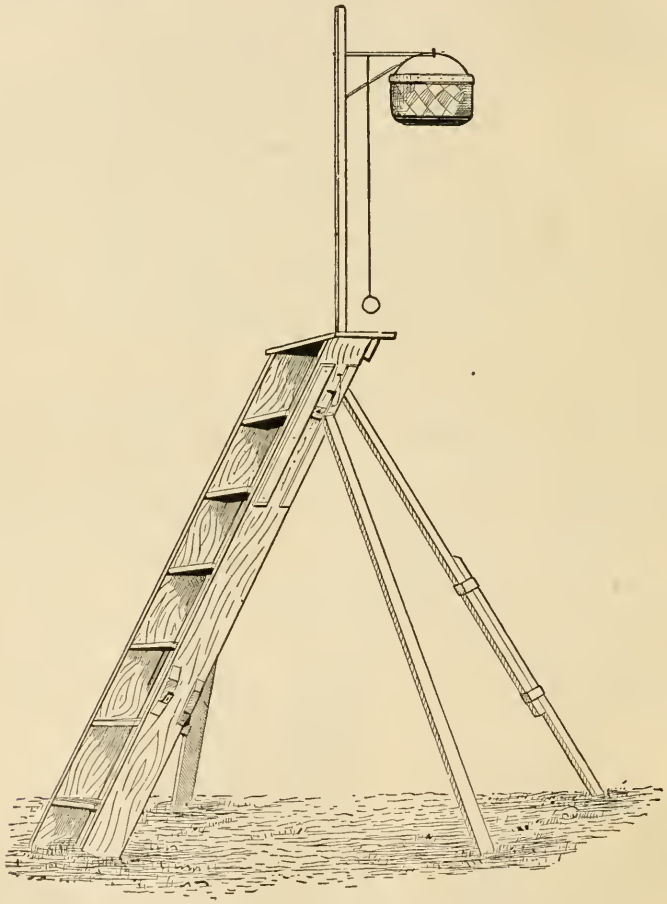


FIG. 11.—SELF-SUPPORTING LADDER.

A correspondent, Mr. Harris, of Meaford, sends a photograph of a self-supporting step-ladder, which he describes as resting on five bearings, three of them adjustable as to length and position, and easily adapted to all inequalities of surface, perfectly secure, and very portable ; a six-foot ladder

weighs about 40 pounds (see fig. 11). The crane, or basket and hook holder, rotates, or may be shifted to either side of the operator, will support thirty pounds of fruit in basket with ease, and the legs all fold in when required. The object of the inventor to provide a safe stand, and at the same time increase the facilities of the operator in picking fruit, pruning trees, etc., giving him the full use of both hands, and placing the basket within easy reach of the same, thereby saving time in transporting the fruit from the tree to the basket. The inventor believes that by the use of this ladder a great saving of time will be effected in the picking of fruit, which is equivalent to a saving of money; also that fruit can be handled with less damage by bruising, etc., and therefore bring more money.



FIG. 12.—LADDER FOR DWARF PEAR TREES.

The *Ohio Farmer* illustrates a very convenient self-supporting stepladder for use in gathering fruit from high grown dwarf pear trees. Most of us know how difficult it is to use an ordinary ladder in a full grown dwarf pear orchard, for, either the ladder will bruise the fruit in placing, or will be so insecure as to render climbing unsafe. Fig. 12 represents the ladder referred to, and is so simple in construction that it needs no description. Its use in case of slender trees is plainly evident, whether pruning or fruit gathering is required to be done.

PRUNING THE GRAPE.

The best time to prune the vineyard is, no doubt, the month of November, when the weather is pleasant for the operator, and the vines need loosening from the trellises, and laying down for winter protection, especially at the north; but, if done in that month, they should be pruned a little longer than if left until March, because the severe weather of winter is very likely to destroy the last bud, or, at least, to weaken it. In practice, however, a great many postpone this work until the latter date, a time of chilling winds, muddy walking, and of bleeding vines. However, better late than never, and hence the following hints which may be of service to the beginner. It is astonishing to any one who is posted, to notice the

neglect of pruning by many grape-growers. Year after year, the tangled, matted masses of wood continue to grow more and more tangled, until all hope of better things is dead.

The old system of staking the vines is still followed in some parts of the country; a much more expensive method than that of the post and wire, as well as more troublesome to keep in order; besides, it allows no satisfactory method of pruning. The simplest possible trellis is the post and wire, for which solid posts six feet high may be placed forty-five feet apart, and stakes at distances of fifteen feet between, to all of which the wire is stapled. Three strands of galvanized wire, No. 13, or even as small as No. 16, may be used, the lower one about two feet from the surface of the ground. A very simple method of bracing posts is used about Grimsby, by which wires are tightly strung from the top of the post to a flat stone about which it is wound, and which is buried a few inches below the surface.



FIG. 13.—BRACING WITH WIRE.

It is very important to follow some system in pruning. A hap-hazard method may do for a time, but, as the vineyard ages, the mistake will be very evident. The fan system, as employed in many places, is no system, and in time will leave the vines in a very unsatisfactory condition. By it, the young wood is constantly being removed farther and farther from the root, and the great ugly stalks are too unwieldy to be ever put down for protection. For the Concord and Worden, winter protection in Southern Ontario may not be necessary, but for the Rogers grapes, there is no doubt about its importance.



FIG 14.—KNIFFEN SYSTEM.

Another method, known as the Kniffen System, is open to the same objection, though in a less degree. This system is shown in Fig. 14, and has some good points, for the pruning consists only in spurring back to the four arms, and little tying is needed, as the young wood can hang down from the two wires. On the whole, this is, perhaps, a commendable method for the busy farmer, who cannot find time to tie up the young wood in early summer.

The most satisfactory method is, no doubt, the Renewal System, or some modification of it, as described in Vol. XII., p. 66; for although it may

be a little more troublesome in the matter of summer tying, it has, in other ways, every advantage. For winter protection, it is best because the main arms are so near the ground that they may be easily loosened, and laid down; for fruit bearing, it is best because the horizontal is the best position for bearing wood, and because the latter is thus kept near to the roots, the source of nourishment; and for the shapely appearance of the vineyard as it increases in age, this mode is also best, for evident reasons. Mr. Thos. Beall, of Lindsay, says he has employed, with much success, a modification of this system, using only one arm instead of two, as shown in Fig. 15, in which only one arm is grown instead of two, in which case, of course, it may grow seven or eight feet long instead of four. He claims

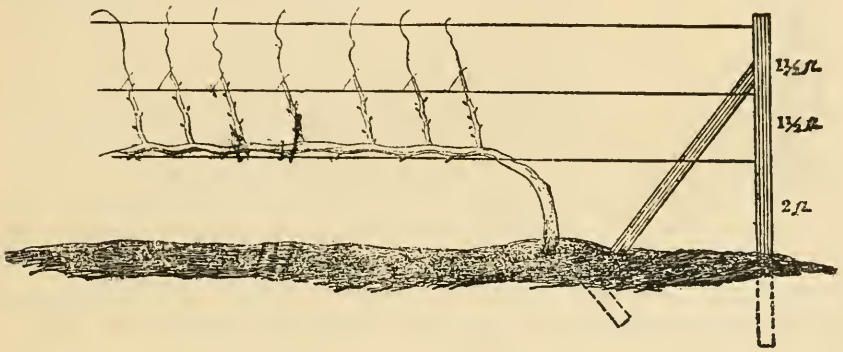


FIG. 15.

that, in this way, the vine is much easier laid down for winter protection, and therefore this mode is better, at least for colder sections.

The two-arm method of grape pruning was well described at our Windsor Meeting, in a practical manual, by Mr. O. Neill, and his address will appear in the Annual Report for 1890. We will give here, in advance, the following six principles, which, in his opinion, should govern all systems of grape pruning:

"Any correct system of pruning the vine must accommodate itself to the following observed facts:

(1) The growth tends to divide itself among many small and weak stems.

(2) There is a strong tendency to develop the highest buds.

(3) Other things being equal, the most vigorous buds are found neither at the base nor at the top of the cane, but midway.

(4) A short bend in the cane tends to develop the buds just above the bend.

(5) The destruction of the terminal bud during the growing season checks the growth in length, but hastens the maturity and development of all the tissues and buds below it, the effect decreasing with the distance from the terminal bud.

(6) A strong growth in one cane arrests the growth and development of the other canes."

HOME-MADE PRUNERS.

THE *American Agriculturist*, of recent date, describes a set of home-made pruners of very simple construction, which any one can make.

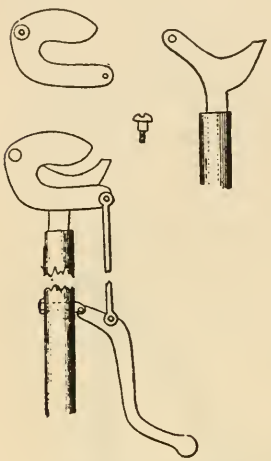


FIG. 16.

We copy the cut and description, as we believe they will be of value to our readers :

The moveable shear, to which the pitman rod is attached, does most of the cutting. Both shears are made of thin, hardened steel. From the bolt-hole in the moveable shear a rod longer or shorter (the pitman), to correspond with the length of the pole used, runs to the lever shown at the bottom of the cut. In pruning trees and vines the handle of this lever is raised, which forces up the bar and opens the jaws of the shears. Then, on lowering the lever, the twig, if it be placed in the shears, is clipped off. The jaws of the shears must be ground at an angle somewhat more acute than that commonly employed for tailor's shears, The highest part of each bevel must come against the bevel upon which it acts. The screw shown connects the shears.

Anyone who has tried such pruners in his young orchard, and has found the great advantage they afford over the saw, will be wholly unwilling to do without them. Not only does he save time by the use of such pruners, but if the knives are sharp the cuts will be smoother than those made by the saw, and consequently easier healed.

FERTILIZERS FOR THE GARDEN AND ORCHARD.

WOOD ASHES.

IT is an astonishing fact that Canadian wood ashes, one of our most valuable fertilizers, is being exported to United States in car lots, while in Canada it is so little valued by our farmers that it is sold for a mere song to the ash collectors, or allowed to waste its strength in neglected piles about the house.

Fruit farmers in the States are paying twenty-five cents a bushel for Canadian ashes by the carload, and are finding in them one of the most economical fertilizers which they can apply. The Experiment Station at New Haven, Conn., has been analysing various brands of Canadian ashes, and found them to vary considerably in the amount of potash which they contain, some having only four per cent., and others as much as ten per cent. The variable nature of the composition of various lots of wood ashes is no doubt largely due to the wood from which it is derived, thus it has been found

that old field pine only yields about four per cent. of potash, while hickory gives twenty-eight per cent., and white oak forty-two per cent.

The most important difference between leached and unleached ashes consists in the amount of potash; and the following table will show explicitly the per centage composition of each, from certain lots analysed:

	UNLEACHED ASHES.	LEACHED ASHES.
Sand, Earth and Charcoal	13.0	13.0
Moisture	12.0	30.0
Carbonate, with some Hydrate of Lime	61.0	51.0
Potash, (chiefly as Carbonate)	5.5	1.1
Phosphoric Acid	1.9	1.4
Other matter	6 6	3 5
	100	100

The effect of the application of unleached wood ashes to the soil depends upon the kind of soil to which it is applied. On heavy clay soils the potash has effect making them heavier and more tenacious, but on light soils the effect is most beneficial, rendering them compact and better able to resist a drought. They also tend to correct "sourness" of the soil, by precipitat ing the soluble iron salts to which this state is due.

Another way in which ashes benefit the soil is in promoting nitrification, by which is meant the process by which nitrates are furnished for promoting the growth of plants, and for this, carbonate lime is necessary to form a base, with which the nitric acid may combine.

The writer has experimented for some years in the use of wood ashes for peach, pear and apple trees, on light soils, and has found them to give excellent results. The wood growth has been stronger, the fruit larger and better colored, and the crop more abundant. It surely does not pay to allow such a valuable fertilizer to go to waste, or to be exported to enrich the orchards of our Yankee cousins, when we have orchards at home starving for want of them.

BARN MANURE AND COMMERCIAL FERTILIZERS.

While we highly commend ashes for fruit trees, we by no means undervalue the product of the stables, for in it we have a most important element, called Nitrogen, which is absent in wood ashes, the only difficulty is to get a sufficient quantity for the farm, garden and orchard, and usually the latter goes entirely without. Now, this is a most serious mistake, and no doubt is one reason for the present discouragement of many orchardists, for the trees have been, year after year, exhausting the soil, without any return of fertilizers.

Nothing is lost, unless on side hills, in drawing out barn manure in winter-time, as fast as made, and spreading it upon the ground, and much valuable time in spring is saved.

Where barn manure is scant, it is no doubt wise to buy commercial fertilizers for the orchard and garden, especially in connection with good cultivation, but it is unwise to apply fertilizers and neglect that careful working of the soil by which its own native fertility is rendered available for tree and plant growth. Frequently, indeed, it is found that cultivation alone is wanted to bring a barren and profitless orchard into a fruitful and paying condition.

Sometimes it will pay the farmer to make his own chemical fertilizer, by buying the raw material, and mixing it himself. Prof. Panton stated, at our meeting at Chatham, that a saving of twenty per cent. can be effected by making a superphosphate at home. His recipe for the mixture will be found on page 82 of our Report for 1887. It was by bulk, one part bone dust, two parts of ashes, one third of water, and one sixth of plaster. This of course lacks nitrogen, but this can be furnished in barn-yard manure. His recipe, by weight, was one part of bone, one of ash, about a quarter of slacked lime, and about one-eight of crude carbonate of soda. After this has stood a while, add some soil, say one-fifth of the bulk.

Either one of these will form a most excellent fertilizer for the garden and orchard.

In order that our readers may be able to judge of the value of any commercial fertilizer offered for sale, we give here the average trade values, or retail cost per pound of the ordinary occurring forms of nitrogen, phosphoric acid and potash, according to a late bulletin of the Connecticut Experiment Station:

	PER LB.
Nitrogen in ammonia salts	19
" nitrates	17
Organic nitrogen in dry and fine ground fish, meat and blood	19
" " in cotton seed meal and castor-pomace	15
" " in fine bone and tankage	16
" " in fine medium bone and tankage	13
" " in medium bone and tankage	10
" " in coarser bone and tankage	8
" " in hair, horn shavings and coarse fish scrap	8
Phosphoric acid, soluble in water	8
" " " in ammonium citrate*	7
" " " in dry ground fish, fine bone and tankage	7
" " " in fine-medium bone and tankage	6
" " " in medium bone and tankage	5
" " " in coarser bone and tankage	4
" " " in fine ground rock phosphate	2
Potash as high-grade Sulphate and in forms free from Muriate (or Chlorides)	6
" as kainit	4
" as muriate	4

NEW OR LITTLE KNOWN FRUITS.

THE APPLE SAMPLES FROM MR. NICHOL.

IN our last number a letter was published from Mr. Nichol concerning four comparatively little-known apples, which, in his opinion, are worthy of general cultivation. One of these, the "La Rue," has already been frequently noticed in our Journal and Reports, either under that name, or under its synonyms of "Red Pound," or "Baxter's Red"; and an engraving,

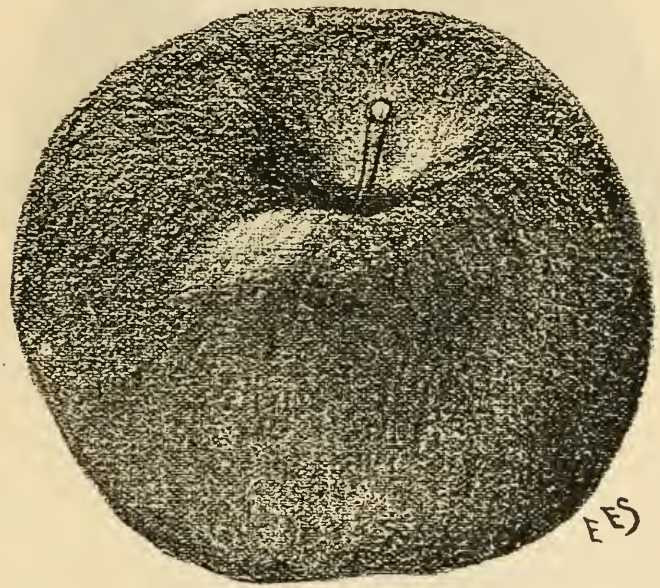


FIG. 17.—THE GIBSON.

very truthfully showing its exact size and shape, appeared on page 8. It is indeed a beautiful apple, quite equal to the King in this respect, larger in size, and reported to be a more abundant bearer. Mr. G. C. Caston, living in the County of Simcoe, reports it quite hardy, and with this combination of excellent qualities it cannot fail to become a valuable apple for the commercial apple orchard. We cannot give its exact season, but, from the sample lying on our table, and still (10th January) in good condition, would judge it might be classed as an early winter apple, along with the King. In quality it is inferior to the King, but superior to the Ben Davis or even the Baldwin.

THE LEEDS is a fine looking, yellow apple, that would suit many people's taste as a dessert apple; it comes under the head of sweet apples, and yet is less saccharine than most of that class. It may be described thus:—

Fruit, large, oblate. Skin, fine yellow, waxen, considerably dotted. Stalk, short, inserted in a deep cavity. Calyx, closed, inserted in a large, moderately deep basin. Flesh, white, firm, fine-grained, juicy, sweet, of excellent quality. Season, probably January and February.

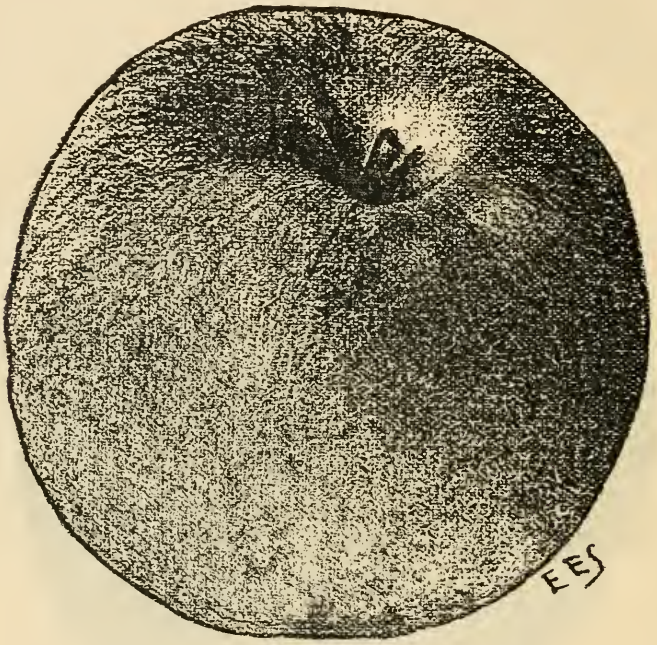


FIG. 18.—THE MCLEAN.

THE GIBSON is rather a fine dessert apple, of the Fameuse type of apples, and is well represented in our engraving, which was made from one of the samples sent by Mr. Nichol. Size, medium; form, oblate, conical, somewhat shouldered; skin, greenish, well-covered and striped with dark crimson; flesh, white, tender, juicy, sub-acid, of good quality. Season, probably January, judging from the sample before us.

THE MCLEAN, of which we also give an engraving, is in appearance a strikingly beautiful apple. Fruit, round, medium size; skin, with delicate yellow ground, with waxen lustre, covered with beautiful pale rose color on the basal half; stem, slender, about one inch long, in an even, russeted cavity; calyx, small, in a moderate-sized basin, slightly corrugated; flesh, fine-grained, tender, moderately juicy, very good, but having a tendency to rot at the core.

The above descriptions are based upon single specimens, the others having been sent away to either the artist, or to the Windsor Meeting, and consequently may need qualifying. We subjoin the report of the Fruit Committee at Windsor on these apples.

"D. Nichol, Cataraqui, shows the following apples :—GIBSON strongly, resembling the Black Detroit in flavor, scarcely any better. LEEDS, large, green apple, with slight blush, closely resembling Holly in form, and about the same in size, but inferior in quality. LA RUE, very large, handsome, but rather poor in quality. MCLEAN, a handsome apple, much resembling Princess Louise, with which in its size, form, color and flavor (?) it is almost identical."

THE PRINCESS LOUISE.

MR. T. T. LYON, speaks of this apple as follows :—The Princess Louise is a still more recent introduction by our Canadian friends, which, whatever its actual parentage, betrays in its size and color, as well as in the whiteness, aroma and juciness of its flesh, indications of a close relationship with this type of apples.

Its aristocratic name accords well with the daintiness of its quality, as well as with its general appearance, as also with the political peculiarities of its native region ; but it will be very sure, if naturalized on this side of the border, to lose the aristocratic prefix ; and despite its acknowledged delicacy and beauty, become plain Louise.

GALVANIZED WIRE TRAYS FOR EVAPORATORS.

MR. E. B. RICE, of Port Huron, Michigan, read a paper on the subject of Evaporated Fruits at our Windsor Meeting, and in the course of it he showed that the use of galvanized wire trays was a serious matter ; several cases of zinc poisoning have resulted. Owing to this danger in the use of American evaporated apples, Germany has refused them if cured on galvanized wire trays.

After quoting various excellent authorities in proof of this, Mr. Rice said, that unless a wire cloth could be found, so galvanized that the acid of the fruit will not affect it, it is clear that its use must be abandoned. The question is, what is to be substituted, for the only metals in use that are proof against fruit acid are gold, silver and platinum. The new metal, aluminum, when it becomes cheap, may answer the purpose. For the present, Mr. Rice favored the use of iron wire cloth, as iron rust cannot be called a poison, or else return to wooden trays.

AN ESTIMATE OF APPLES.

DR. T. H. HOSKINS, excellent authority upon pomological matters, notes the statement that not more than one tree in twenty-five (some say not more than one in fifty) ever gives even one profitable crop; declares that his own experience is that common varieties pay less on the same ground than potatoes, where there is a good local market for the latter, but thinks, nevertheless, that, owing to the fact that we must vary our crops, good orchard land—strong soil which may be too rocky or uneven for convenient tillage—may well be set to apples by a person young, industrious, persevering, and who will study the business. But "the money" is in the best well known winter sorts to which the locality is adapted. In reference to this important point we quote the doctor's views in full, as expressed through *Our Country Home:*

"The American apple of which by far the larger quantity is sold, and at a full price, is in quality third rate. This is the Ben Davis, the leading market apple of the Mississippi valley. The Baldwin region is very limited compared with the Ben Davis region. By this I mean the Baldwin is a keeping and shipping apple. South of 40° north latitude, the Baldwin fails as a keeper, while north of 43° the tree fails in hardiness. It also fails in the Mississippi valley everywhere. Ben Davis succeeds further north, further south, and further west, and is indeed entitled to stand first as the great American market apple; but it has not succeeded as an export apple for lack of quality. South of the Baldwin region, on the Atlantic slope, unquestionably the finest commercial keeping apple is the Yellow Newton Pippin—the Albemarle Pippin of Virginia. Like the Baldwin, it is rather local as regards success, but it succeeds much further south and is a much better apple, always bringing a fancy price in Europe, where it is well known. In Pennsylvania and Virginia the culture of this queen of apples is yet capable of large and profitable extension. It is just about as much better as the Ben Davis is poorer than the Baldwin. Further north than the Ben Davis will thrive, there has been, until lately, no great commercial apple which would endure the winters and be remunerative. But in the Wealthy, of Minnesota, such an apple has appeared. Like the Baldwin, it is apt to become unsound in the trunk, and will unquestionably prove most profitable when grafted in the tops of ironclad varieties having sound bodies. Some Wealthies have already been shipped to England from Canada, and received with great approval. The discovery of this variety has extended profitable apple culture at least 100 miles further north, and given to the St. Lawrence valley a good export fruit."

RESULTS OF EXPERIMENTS IN TOMATO CULTURE.

FREQUENT transplanting of the young plant, and good tillage, are necessary to best results in tomato culture.

2. Plants started under glass about ten weeks before transplanting into field gave fruits from a week to ten days earlier than those started two or three weeks later, while there was a much greater difference when the plants were started six weeks later. Productiveness was greatly increased by the early planting.

3. Liberal and even heavy manuring, during the present season, gave great increase in yield over no fertilizing, although the common notion is quite to the contrary. Heavy manuring does not appear, therefore, to produce vine at the expense of fruit.

4. The tests indicate that poor soil may tend to render fruits more angular.

5. Varieties of tomatoes run out, and ten years may perhaps be considered the average life of a variety.

6. The particular points at present in demand in tomatoes are these: regularity in shape, solidity, large size, productiveness of plant.

7. The ideal tomato would probably conform closely to the following scale of points: Vigor of plant, 5; earliness, 10; color of fruit, 5; solidity of fruit, 20; shape of fruit, 20; size, 10; flavor, 5; cooking qualities, 5; productiveness, 20.

8. Solidity of fruit cannot be accurately measured either by weight or keeping qualities.

9. Cooking qualities appear to be largely individual rather than varietal characteristics.

10. The following varieties appear, from the season's work, to be among the best market tomatoes: Ignotum, Beauty, Mikado, Perfection, Favorite, Potato Leaf.

11. The following recent introductions appear to possess merits for market: Bay State, Atlantic, Brandywine, Jubilee, Matchless, and perhaps Lorillard, Prelude and Salzer.

12. The following recent introductions are particularly valuable for amateur cultivation: Dwarf Champion, Lorillard, Peach, Prelude.

—L. H. BAILEY, *Cornell University*.

THE NOVA SCOTIA APPLE CROP OF 1889.

A PROVINCIAL Crop Report of fruit and field crops, has been issued by the Nova Scotia Department of Agriculture. The following table shows the per centage of yield of apples in 1889 by the twelve principal market varieties, grown in Nova Scotian apple orchards.

VARIETY OF APPLES.	PER CENT.
Nonpareil	88
Golden Russet	86
Blenheim Pippin	84
Ben Davis	83
Roxbury Russet	83
Gravenstein	83
Ribston Pippin	82
King of Tompkin's County	82
Baldwin	80
Rhode Island Greening	76
Blue Pearmain	70
Bishop Pippin or Yellow Bellefleur	62

Total average of all varieties 80 per cent.

The prices obtained for fruit are reported as generally good; but, in consequence of the fruit maturing much earlier than usual, losses have been sustained in marketing, and especially by agents who purchased largely for export. Early ripening means imperfect keeping quality, for it is only fruit that is not quite ripe that can be kept. At Canning, a central shipping port in the apple district of Kings County, Ribstons and Kings have sold for from $3.00 to $3.50 per barrel, Baldwins and Gravensteins for $2.25 and $2.50. At Aylesford the prices ranged from $2.00 to $3.50, according to quality. In Pictou County prices were good, compared with those of former years. In Queen's County good winter apples sold for $2.50 per barrel.

CARE OF FRUIT PAYS.

THE men who succeed best, obtain the best prices, and who receive returns every year, are those that take the best care of their trees and the crops which grow on them. They do not shake off their fruit in gathering, nor allow it to become small and wormy. They treat their orchards as well as they do their corn and potatoes, manure them as freely, cultivate them as carefully. They do not allow apples to become small and scabby from over bearing, any sooner than they would allow a field of corn to fail by planting three times too thick. Poor pears can hardly be sold for fifty cents a bushel; the best, put up in the best condition, often bring from three to five dollars, if marketed at the proper season.—*C. Gentleman.*

THE CRIMEAN APPLE "SYNAP."

I AM glad to see in the issue of January, the notes by Mr. Niemetz on what he calls the "Synap" apple. It is singular that he does not state that, in many parts of Russia, the Sary Synap is grown under the name of Persian. When at the Bogdanoff estates, near Koursk, in 1882, I saw hundreds of bushels of this apple beautifully colored in early October, and as firm as the Gilpin would be with us at that season. But we were assured that "Synap" was a local name for this fruit, and that it had been known for a century in Koursk as the *Persian*. Hence we imported it from the Bogdanoff grounds under this name, and have widely distributed it for trial. In tree it proves nearly or quite an iron-clad, and quite as free from blight as the Duchess. As yet, we have only had specimens of the fruit from young trees reserved for scion cutting, which were much smaller than those we saw in Russia, but have kept well through winter. A friend in South Iowa who top-worked the Persian on Fall orange, has sent me fruit as large as Ben Davis, but far more oblong and handsomely colored. I believe it will prove a profitable apple of medium size over a wide range of country at the north, but I shall be sorry to see it go out under varied names. I will also add that we saw two other varieties of these oblong, peculiarly colored apples, at Saratov, on the Volga, where they were called "Persian," followed by an adjective to indicate the particular variety meant, as is the custom in Russia.

Ames, Iowa. J. L. BUDD.

CANADIAN RAISINS.

THE *Hamilton Herald* reports that the production of raisins is being undertaken as an industry in that city. The following is the item as it appears in that paper.

"The production of raisins in Canada is indeed a new industry. The *Herald* was shown to-day a fine sample of raisins from grapes grown in open air in the city of Hamilton, which were taken from the vine on the first of October, 1889, and laid aside in a cool room, where they remained without special attention. It is a matter of surprise to find an article of commerce of so great value originating in Ontario, and in this city. It will not be forgotten that the vintage of 1889 was almost totally destroyed by the extreme frost of the 28th of May last, followed by atmospheric influences favorable to mildew, completing the destruction of plant life. Despite this, however, could this fruit have received the same process of raisin curing as undergone in Spain or California, it would likely bear a favorable comparison. Notwithstanding the above drawbacks, the raisins shown us are no mean specimens.

"The vine originated in this city, under the skilled manipulation of an old Canadian hybridist. It has made its way to California and other distant points in the United States under the name of 'Mills.'"

SOMETHING ABOUT WINDBREAKS.

I DO not think a more valuable thing was ever devised for the horticulturist than the planting of wind-breaks. Of course its greatest utility is in the winter season, when its presence gives a home the look of cosiness and comfort, and rightly located on the windward side saves much fuel, and food for animals which always require a greater amount where exposed to the cold.

The protection afforded to the more tender fruit trees is invaluable. I have known peach trees to bear heavily during the past few years when there has been such a general scarcity, on account of enjoying such protection in winter, the fruit of course bringing greatly advanced prices over years when crops were plentiful generally. A windbreak on the north and west sides of a fruit patch, twenty feet high, not only protects the trees from heavy winds but distributes the snow evenly, thus avoiding the heavy drifts in certain places to the bareness of the ground in another, making a good mulch for small things like strawberries, etc.

No one should be deterred from having an effective windbreak of the Norway Spruce, which is the best for the purpose, the trees being very low in cost for good planting stock. The proper distance apart for planting the trees should be according to the means of the planter, or his haste to obtain shelter. In time, trees planted six feet apart would give complete shelter for an apple orchard, though often the distance is as near as two feet when shelter is needed as soon as possible, though the things to which protection is given in this case have, of necessity, to be small growers.

There are other evergreens beside the Norway Spruce which make a good shelter belt, but this variety being so entirely hardy, growing rapidly on a large variety of soils, and is not easily injured by snow lodging in its branches as in some other kinds, stands at the head of the list.

In starting a windbreak the greatest difficulty lies in transplanting, so, where it is possible to procure the stock near at hand, it is much more certain to succeed than when ordered of a far-off nursery man, as the roots are very impatient of becoming dry. In fact they cannot become dry with very perceptible injury. Where the roots can be kept moist until planted, there is but little fear of having a good proportion of the plants grow. Small sizes are to be preferred, as the chances of growing are more certain. But when once planted rightly, there are no easier trees to grow.

It has been estimated by one who has planted a number of large windbreaks in all sorts of locations, from that of a small one for the home, to those of considerable magnitude now being started in some of the prairie States that the average cost of the stock is less than $5 per 100 feet, and where one has the patience to plant the very small seedlings which are often sent by mail, the cost may be reduced materially.

Buffalo, N.Y. W. F. LAKE.

COPPER SULPHATE AGAINST FUNGI.

EXPERIENCE during the summer of 1889 encourages the belief that we have in the solutions of copper sulphate a defence against many of the fungus pests which so seriously threaten the prosperity of our agriculture. In 1888, the efficacy of what is known as the Bordeaux Mixture, as a preventive of mildew and Black Rot of the Grape, was fully proved. This year experiments have taken a wider range, and many of the so-called diseases of plants have been successfully treated. The Apple-leaf rust (*Rœstelia pyrata*) succumbs to an occasional spraying with the Bordeaux Mixture. The Quince blights (*Morthiera Mespili* and *Hendersonia Cydoniæ*) are likewise prevented, and the fungus, which causes the blight of leaves and cracking of fruit of the Pear, may now be regarded as under the control of the copper solutions.

The prevention of this Pear fungus, *Entomosporium maculatum*, is, perhaps, of greater advantage in the nursery than in the orchard. Where the disease is epidemic in the nursery it places a veto upon the budding and grafting of young Pear stocks. The leaves are destroyed just when their aid is essential to the vitality of the bud or cion. By spraying the nursery rows every three weeks, during the season of growth, with the Bordeaux Mixture, the leaves are preserved in health and the success of the grafter's labor is assured.

But, in addition to this use of the copper solution, it is found to be preventive of the Tomato blight (*Macrosporium Solani*), and (which is of far wider importance to our agriculture) it prevents the Rot of the Potato, *Phytophthora infestans*. In treatment of this disease of the Potato-plant, some of our experiment stations have this year been quite successful. My experiments in this line have had gratifying results. For many years in this region of Southern New Jersey, every attempt to grow the Peachblow Potato has been a failure. At about the time the plant is in blossom, and, the tubers are, say one-fourth grown, this deadly blight invades the Potato field, and sweeps over it like fire. I have had an acre of Peachblows showing every sign of thriftiness, and giving promise of a heavy crop, and, in one week from the time of the appearance of this blight, every plant was dead or dying. It is the prevailing opinion here that the Peachblow Potato is a variety which is "run out," and its culture has been generally abandoned.

Happening to see, last autumn, a few bushels of small Peachblow Potatoes for sale, I bought them for the purpose of giving them another fair trial under the protection of the Bordeaux Mixture. Last June I plowed a clover sod between the three-rows of an orchard, and there planted these Potatoes in five equal plats of three rows each, manured in the row with the Mapes Potato Manure, at the rate of half a ton per acre.

The plats lay side by side, running north and south. When the plants were a foot high, and before they blossomed, I began to spray some of them with the Bordeaux Mixture, and repeated this operation every two or three weeks thereafter, until nearly the last of September. The times of treatments were regulated somewhat by the weather and the frequency of heavy rains. At any rate, I aimed to keep leaves and stalks on the sprayed plats pretty thoroughly whitewashed with the copper sulphate solution, so that its presence was always visible all over the plants. Whenever a drenching rain washed off the application, it was renewed as soon as possible. I made the treatments with the portable Eureka spraying machine. I thus sprayed Plats 1 and 2, left Plat 3 (the middle plat) untreated, and sprayed also Plats 4 and 5.

About the time the plants blossomed, the middle plat (No. 3) was, as usual, struck by the blight, and in two weeks all of the potato tops on this plat were dead and dry. The plants on the other plats were green and growing as vigorously as could be wished. They remained green and growing until killed by frost in November.

I then dug and weighed separately the total product of each plat. Plat No. 1, sprayed with Bordeaux Mixture, yielded 346 pounds of fine large marketable potatoes, which were sold as soon as dug for a dollar a bushel. Plat No. 3, not sprayed, yielded only 164 pounds of small-sized tubers, scarcely one of which was marketable.

The diameter of the largest tuber on the untreated plat was three inches. The diameter of the largest on the treated plat was five inches. There is a marked difference in the cooking of potatoes from the unsprayed and from the sprayed plats. Those from the plat not treated are immature and "soggy." Those from the treated plats are mealy and have all the excellence for which the Peachblow potato was formerly esteemed.

I have saved ten or fifteen bushels of these Peachblows to plant next year, in the confident expectation of a crop of 350 bushels of potatoes per acre. Under the unfavorable conditions in which these experimental plats of potatoes were grown (between rows of trees twenty feet apart and twenty years old) I did not expect a large crop. Yet the yield of the treated plat (No. 1), 346 pounds from 225 hills, is not bad, under the circumstances, being about 125 bushels per acre.

Of the Bordeaux Mixture employed the formula is: six pounds of pulverized sulphate of copper (blue vitriol), dissolved in four gallons of hot water; four pounds of fresh lime, dissolved in four gallons of cold water; mix the two solutions and dilute with cold water to make twenty-two gallons of liquid.

I believe, however, that the ammoniacal solution of carbonate of copper will be found as efficient a fungicide as the Bordeaux Mixture, and it has the advantage of being more readily prepared and more easily distributed in spray. Its formula is: carbonate of copper, three ounces; ammonia, one

quart; mix. The copper carbonate will dissolve almost at once in the ammonia liquor. Then dilute this mixture with cold water to make twenty-two gallons of liquid.

From sundry experiments which I have made this year, and which I have reported in detail to the United States Department of Agriculture, I conclude that it is the copper in solution which is specifically antidotal to fungus germs, and not the other component, sulphuric acid, of the sulphate. In experimenting on treatment of the Black Rot of the Grape, I tried quite extensively a mixture made similarly to the Bordeaux Mixture, only substituting sulphate of iron (copperas) for the copper-sulphate. This mixture had no effect whatever in prevention of Grape Rot. I saw some benefit from its use, however, in prevention of leaf mildew, and it is quite likely that it may be found sufficiently effective for treatment of the blights of the Potato and Tomato. It is much cheaper, pulverized sulphate of copper costing about eight cents per pound, while copperas costs only seven-eighths of one cent per pound.

Further experiments are required to teach which of these fungicides may be the preferable one, and for what uses. Certain fungi will endure with impunity applications under which others will perish, and certain varieties of plants are damaged by chemical solutions which do not harm others. Thus, the Tomato plant will not tolerate a spraying with Bordeaux Mixture as it is used for the Potato. The mixture for the Tomato must be reduced in strength, at least, one-half. Nor will *Vitis æstivalis* endure spraying with copper-sulphate mixtures, which do not injure the vegetation of *Vitis Labrusca*.

My counsel to those who purpose engaging in these vegetable therapeutics is to go slow. When all ready for spraying try only a few patients at first, and wait to note the effects of the medicine. Otherwise there is great danger of learning pathological wisdom as did the quack doctor who found out in his practice that "what cured the shoemaker, killed the tailor."—A. W. PEARSON, *in Forest and Garden*.

WINTER PROTECTION FOR GRAPES.

THE practice of laying down Grape-vines and covering them for winter, is not universal; yet, with most varieties, in nearly all of New England this treatment pays. Growers find that even when the buds of uncovered vines all start well, the covered vines give a better crop, and ripen it earlier. If vines are planted against the south side of a tight fence, laying them on the ground will be all the protection needed in a snowy country, as a deep drift will form in such a spot. Such a drift will not waste away for a long time where there is snow enough for pretty steady sleighing.—DR. HOSKINS, *in Garden and Forest*.

FLOWERS.

SOME PRIMULAS.

PRIMULA OBCONICA.

THIS new Primrose from Japan, is quite distinct from any Primrose in cultivation, being a perpetual bloomer, at least for nine months in the year. The quantity of bloom is something extraordinary. A plant in a seven-inch pot last winter had seventy-five spikes of bloom on it at one time. It requires a much larger pot to flower in than the Chinese



FIG. 19.—PRIMULA OBCONICA.

Primrose, the last will do very well in a five-inch pot, but *Primula obconica* requires a six or seven-inch pot to grow it to perfection. It will become a great favorite when it is better known, not only on account of its great beauty as a decorative plant, but its commercial value as a plant for cut

bloom. This novelty has come to stay with us. It is an evergreen plant, starts to flower in August, and continuing until June, and a few flowers all summer. The flowers are produced on slender stems, about 9 inches high, white, with a slight tinge of purple. It succeeds best when grown from seed every year. Seed sown in March, the plants will start to flower in August, I had them in bloom by the first of September, but as the seed is very slow to germinate it would be better to sow it when the seed crop is harvested in the fall. It also can be divided in spring after flowering all winter. I do not recommend this practice; the young plants do not grow nor flower so well as young plants from seed. A temperature of 50 degrees seems to suit it to perfection. As a window plant it can have no equal. In cloudy weather the flowers take on a purple tinge, in clear bright weather they are pure white. It is a pure species from Japan, and is not hardy in our climate, I think it might be improved by our florists. The flowers have a disposition to vary greatly in size, some florets are 1¼ inches in diameter, others only half that size. Last winter I tried to cross it with other Primroses, without success, also the Chinese red and white *Primula Cahsmeriana*, *P. Rosea*, *P. Vulgare*, all to no purpose. Thousands of blooms were operated upon, but the Jap refused to have matrimonial relations with any other nationality. However, I found that it will not seed in confinement, even when fertilized with its own pollen. I understand that John Thorpe has been trying the same cross, I hope he has been successful; I will try again at another season of the year. Another remarkable thing that no writer seems to have noticed, about one half of the plants have the anthers longer than the pistil, the other half of the anthers shorter than the pistil. The Corolla is very persistent, it never falls off; on that account it is valuable for cutting, and the long stems adds to its value in that respect. But, what may be against it, perhaps—it may not become fashionable. There is fashion in flowers as well as in everything else, and this tyrannical fashion boycotts many a beautiful flower. It should not be so.

PRIMULA VULGARE.

The old Primrose of our young days is not to be despised as a window plant, flowering about Christmas, lasting about two months. How my heart warms to this old flower; it is deliciously fragrant. It is the plant for the palace and the cottage. It is very easily managed. By sowing the seed in early spring most of the plants will bloom next winter. Plant out in a shady place in summer, lift them in the fall, and they will be in flower by Christmas. I rather think seed of this old Primrose is a little mixed. I sent for a packet of seed to two Canadian seedsmen, and both packets turned out to be Polyanthus, after growing them all winter in the greenhouse.

PRIMULA CASHMERIANA.

This is a new hardy Primrose from the Himalayan Mountains. It is a charming plant, foliage large, covered with a golden farina on the under

surface of the foliage, as well as on the stems. The flowers are of a rich voilet purple, in a close globular umbel. It has proved hardy, but would be better to cover it with a few leaves. It requires shade in summer; flowers in early spring.

PRIMULA ROSEA.

Another new Primrose from the Himalayan Mountains; a plant of great beauty. The color of the flowers is a bright clear rose; also hardy and is easily grown. A scarce plant as yet, but every garden should possess it.

PRIMULA FARINOSA.

A Canadian Primrose, growing on Lake Huron shores. Corolla, pale lilac, with yellow eye. Quite hardy.

PRIMULA MISTASSINICA.

Another Canadian Primrose. I have found this one growing at Elora, also growing on Lake Huron shore. Corolla, flesh-colored. A pretty species, well worthy of a place in the garden.

West Toronto Junction. A. GILCHRIST.

PRIMULA OBCONICA.

ALTHOUGH this is becoming well known in the greenhouses and conservatory, few people are aware what an excellent plant it is for a room. It has been continuously blooming with me in a sitting-room window facing east, since February, 1888. Its handsome leaves and heads of light flowers are always much admired. Its only requirements are potting in pure loam and plenty of water. Unlike most of the Primulas, itis not injured, but seems to be the better for an occasional application of one of the artificial manures. Plants should be purchased in bloom, as they are very variable, and some varieties are much better than others.

A. J. BRUCE.

PRESERVING A LAWN.

AFTER a lawn has been neatly levelled, sown, and become well set in grass, the main point is its preservation. This is in no way difficult, if frequent applications of fertilizers are made, and severe wear is not allowed in particular spots, for games or otherwise. Though fine bone is the best to seed down with when it is harrowed into the soil, it is of little or no use when sown upon the grass. Instead of that, a good complete fertilizer, using about five pounds to the square rod, once in a season, after the first spring mowing, will keep it up. An odorless brand is to be preferred. Wood ashes alone will keep up the grass for some time; but when this is used it is well to apply some nitrous fertilizer occasionally, say a pound of nitrate of soda to the rod, when and where the grass lacks greenness.

LILIUM LONGIFLORUM HARRISII.

LILIUM auratum has had a great run, and is still very popular; but for pot-culture it seems as if L. Harrisii will be even more sought after, as by potting and starting the bulbs at different periods, plants of it may be had in bloom at Christmas, and from that time onwards till quite late in the spring. What has assisted to bring this lily so much into favour is its adaptability for church decoration, for which purpose it is now much sought after, and for which it is well suited on account of the purity and great substance of its flowers.

Those who would like to have Lilium Harrisii in flower at the date mentioned above should obtain bulbs and pot them at once, consignments having lately arrived from Bermuda; and home-grown bulbs are ripe and ready for transit; but for early work I am of opinion that those imported are the better of the two. The soil most suitable for potting the lily is the orthodox mixture of peat and loam, with a dash of sand, just to keep the mass open. The way in which these plants look best, and are the most useful for furnishing purposes, is to put one bulb in a pot, and as the roots require but little space, fine specimens may be grown in 48's, or at any rate in 6-inch pots. In potting, the bulbs should be nearly buried, and the soil made quite firm, when, if the soil is fairly moist on being used, no water will be required till the plants have made a start. To encourage this, it is a good plan to stand them in a close frame, or under the stage of a green-house, and cover them with cocoa-nut fibre or leaf-mould, which will conserve both moisture and warmth, and thereby induce speedy root action, and after this takes place the pots must be removed to a position where gentle heat can be afforded, but at the same time they should have plenty of light to keep them from drawing.—J. S.

THE OLEANDERS.

THE oleander, *Nerium splendens*, is a handsome evergreen, and is often found in the greenhouse of the amateur, and also in the window garden of those who have no greenhouse. It is one of those plants which I think are general favorites with those for whom this column is written. It will do well in a mixture of fibrous loam, leaf-mould and sand. It is a thirsty subject, and when in full growth, providing the drainage is good, can scarcely have too much water. It is easily propagated by cutting off the ends of the shoots, or what, perhaps, is better, by short slips pulled off with a heel. It is a very interesting occupation to root these in bottles of water. Get a few two-ounce medicine bottles, and fill with soft water, and insert the cuttings about two inches, and stand in the window; in a short time they will be seen to emit roots, and they may be then potted into small pots, and placed in the window again. When the cuttings or

slips are struck in water, great care must be taken, or in potting much injury will be done the tender fibres. They will root equally well in sandy soil; this must never, however, be allowed todry, or the roots will perish. Care must be taken when cutting thestems that the hands are free from wounds, as it "bleeds" very freely, and its sap is said to be poisonous. It is said to poison the water of the streams in Algeria, either by drip from its leaves or by the sap exuding from its roots. There are single and double varieties, pink and cream, or fleshcolor. Most of the flowers are almond scented, and the double pink variety is particularly so.

F. C.

CHINESE SACRED LILY, OR NARCISSUS.

THIS variety having come into prominence within the last few years, many of the readers of THE HORTICULTURIST may not be acquainted with the marvellous simplicity with which this bulb is developed. The Chinamen all over Canada and United States consider it a sacred duty to have one or more of these flowering during the winter, and I must confess that nothing is simpler, and at the same time more satisfactory to grow.

As seen in the illustration the bulbs are grown in bowls or basins, in the bottom about an inch and a half of ordinary sand is placed, on which the bulb is placed, and around the bulb a number of pebbles to prevent the bulb from toppling over when in bloom. The basin is then filled with water so as to cover the bulb about half an inch, they may then be placed in a shaded part of the room for four or five days, after which they may be brought to the light, and left there until in bloom, which may take five or six weeks, the water may be poured off every day, when they will flower quicker, but if the amateur does not care to take this trouble, change the water every week.

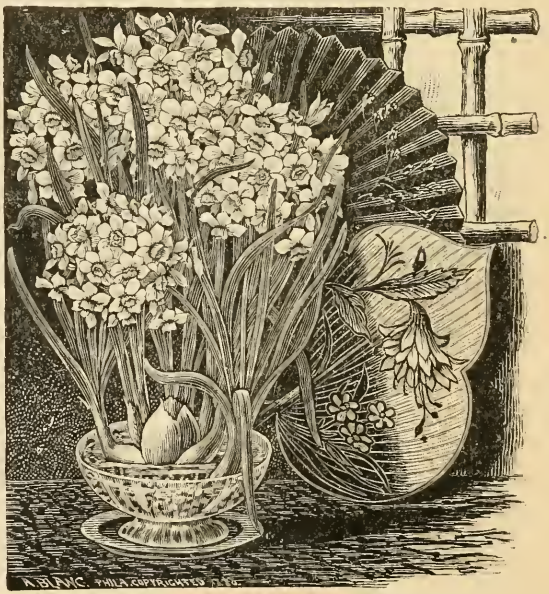


FIG. 20.—CHINESE SACRED LILY, OR NARCISSUS.

The great advantage this variety has over many other winter flowering bulbs is that the bulbs remain for such a length of time in good planting condition, and can be procured or kept and planted when wanted up to the month of April. Now, with

Hyacinths and other such bulbs, you cannot do this, the bulbs exhaust themselves to such an extent that they are unfit for planting later in the winter.

The flowers of the Sacred Narcissus are similar to the Polyanthus Narcissus, and equally as fragrant, and I would advise any person not wishing to try the Spotted Calla, to endeavor and find a place for this easy growing bulb. Many pretty bowls or basins may be used for this purpose, and sometimes such cannot well be used in winter, can be applied for growing the Sacred Lily.

Toronto, Ont. HERMANN SIMMERS.

NEW YORK FRUIT CONSUMERS.

NEW YORK CITY, the metropolis of America, with its suburban cities and towns, furnishes a fruit eating population of over three millions of people. New York being the leading port of entry, the bulk of imported green and dried fruits find their way into consumption through this vast commercial emporium. There were received at New York during one year, 795,745 boxes and cases of oranges from the Mediterranean, equivalent to 70,180,875 pounds of fruit, or 3,509 car loads; of lemons, 1,389,386 boxes, representing 111, 150,880 pounds or 5,557 car loads; of bananas, 2,462,747 bunches, representing about 73,882,400 pounds or 3,694 car loads; of pineapples, 5,071,094, equal to 10,142,188 pounds or 506 car loads; of Almeria grapes, 215,000 barrels, equal to 13,975,000 pounds or 699 car loads. From Florida about 350,000 boxes of oranges, 31,500,000 pounds or 1,575 car loads. From this it will be seen that the amount of green imported tropical and citrus fruits, not including California shipments, entering New York in a single season is something enormous. Here we havea grand total of 310,831,353 pounds of fruit, which would require 15,540 cars to haul and 5,297,396 boxes, cases and barrels in which to pack it. In addition to this, the amount of domestic or home grown green fruit consumed is very large. There are no statistics available as to quantity but some idea may be gained from the fact that of peaches alone seventy car loads arrived at New York in a single day during the peach season. What a market this vast multitude of fruit eaters, who now draw their supplies from all parts of the globe, will furnish for California's fruits in the near future. This season a very small quantity, was sent to New York. As near as we can learn, only 159 car loads or 2,700,000 pounds of fruit were shipped this season from California to supply the demands of upwards of three millions of people in and about New York city, say nothing of the state and interior towns. This is not a pound for each person.—*California Fruit Grower.*



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

OUR RUSSIAN EXCHANGE.

OUR readers will be interested in knowing that the first box of stock from Russia, for testing in Canada, has just come to hand. It contains fifty fine yearling trees of the Koslor Morello Cherry, which was described in volume xii, page 216; pits of a new Seedling Ostheim Cherry, superior to the old Ostheim, of a new and valuable seedling black cherry, called Niemetz, and of Ausjustin's Seedling Apricot, a valuable Russian variety. Forty of the trees we have handed over to the Experimental Farm for testing, and as soon as we can secure them in sufficient quantity, we will distribute them. Mr. Niemetz writes that he could get no more at present, as all that Mr. Mitschourine had were bought by the government for the inhabitants of Siberia. Surely if this cherry will do for Siberia, it should do for Manitoba.

We are also in receipt of some packets of the Russian Pea, described on page 16, and should they prove valuable, they will be propagated and distributed. We hope thus, in time, to introduce into Canada, many useful fruits, especially valuable for our cold North.

A NEW PEAR.

AT our winter meeting last December, in Windsor, Mr. P. C. Dempsey, of Trenton, exhibited a new pear of his own growing, which, at this date, January 1st, is in prime condition for eating. It is a cross between Duchess de Bordeaux and Josephine de Malines. The size of this pear is above medium; form, ob-ovate pyriform; color, yellow, with numerous brown dots; stem, about two inches in length; flesh, yellow, coarse-grained, firm, juicy, of an excellent aromatic flavor.

ABRAHAM'S OAK is the name given to an old oak at Mamre in Syria, supposed to mark the spot where the patriarch pitched his tent in the desert. It is a venerable old tree,

and has attained an enormous size, the circumference at the trunk being twenty-three feet, and its diameter at the spread of the branches ninety feet.

THE DOMINION CONVENTION OF FRUIT GROWERS.

THIS first Dominion Convention of Fruit Growers has now been finally arranged to be held in the City Hall, Ottawa, on Wednesday, Thursday and Friday, the 19th, 20th and 21st of this month.

Papers will be contributed by delegates and others from Ontario, Quebec, Nova Scotia, New Brunswick, Prince Edward Island, British Columbia, Manitoba, and North-West Territory.

Among the subjects to be discussed will be Transportation of Fruits—Packing and Selecting Fruit for the Home and Foreign Market—Express and Railway Freights—Fungus Disease and Blight—Small Fruits and their Commercial Value—The Commercial Apple Orchards of Ontario, Quebec, Nova Scotia—Relation of Insects to Fruit Culture—Export of Winter Apples: Profits, Drawbacks—Utilizing Surplus Fruit Products: Canning, Evaporating — Injurious Insects Affecting Fruits: Remedies to Prevent Ravages—Profitable Forest Planting—Adaptation of Russian Fruits to Canadian Requirements, etc., etc.

Special railroad and hotel rates will be obtained for those desirous of attending.

A cordial invitation is extended to the Associations in the United States to send delegates to this Convention.

Samples of new or little known fruits are specially solicited.

In order to bring out a fair exhibit of fruit grown in various parts of the Dominion, the honorable, the Minister of Agriculture, has placed at the disposal of the Convention, prizes on seedling, fresh canned and evaporated fruits, to the amount of some $400; and exhibitors will be governed by the following rules:

1. All exhibits to be the production of the Dominion of Canada.

2. The name and address of the exhibitor to be attached to each exhibit on cards which will be provided for this purpose.

3. In addition to the prizes mentioned in this Schedule, the Judges shall have the discretionary power to award cards of "Highly Commended" and "Commended" for such exhibits as they consider worthy of same.

4. The decision of the Judges must, in all cases, be considered as final.

The Convention of the Dominion Dairymen's Association, will also be held at Ottawa, on the 18th and 19th of February.

A joint meeting will be held on the evening of Wednesday, the 19th, for the discussion of subjects of interests to both.

Prize lists and programmes may be obtained from W. W. Dunlop, P.O. box 1145, Montreal, who is acting secretary for the Convention.

PETER HENDERSON.

ALTHOUGH not a fruit grower, yet his eminence in the allied science of floriculture, makes the decease of this famous florist, a direct loss to us as Horticulturists. That singular disease, La Grippe, which is carrying off so many people with so litt e warning, made him its victim, and he died of resultant pneumonia on the 18th ult.

He came to New York at the age of nineteen, and after serving as gardener in two or three situations, he began for himself in Jersey City, in 1847; his books on Market Gardening showed the result of practical work in that department, and was so highly appreciated that over 100,000 copies have been sold.

Latterly he has given himself principally to the business of Seedsman and Florist, and his name is familiar to our readers through our advertising columns. To show the extent of his business, it may be stated that his greenhouses covered five acres, and his average force was one hundred hands.

His last work is now in press, in his "Hand Book of Plants," and thus in his work he still lives.

QUESTION DRAWER.

THE BARTLETT PEAR.

5. Having been for many years interested in horticultural matters in England, I was surprised on my arrival here, of seven years ago, to find that well-known pear "Williams' Bon Chretien," to be so largely grown and known here, only under the name of "Bartlett. Can you tell me why this fine pear should be deprived of its right name?—Yours faithfully, ARTHUR GEO. HEAVEN.

We are told that the rose would smell as sweet if called by any other name, and so, fortunately, the change in name cannot deprive this pear of its excellent qualities. The name "Williams' Bon Chretien," or *Good Christian*, is a good name, and, no doubt, was bestowed upon it on account of its being sound to the core, and not deceiving the eater as such pears as the King Sessing, for example, which are hypocrites, presenting a fair exterior, but rotten at heart.

The pear originated in Berkshire, England, about the year 1770, and was propagated by a Mr. Williams, of London. When the pear was first brought to America, its English name was lost, and it was dubbed the Bartlett, after Mr. Enoch Bartlett, of Dorchester, near Boston, who cultivated it and disseminated it throughout the country. It France it is called *Poire Guillaume*, or the William, which is, of course, its proper name, but it is now so universally known in America as the Bartlett, that it is quite impossible to correct the misnomer.

This pear is a greater success in our climate than in England, and is the leading pear in our markets during the month of September.

For some years past we have been in the habit of thinning out the crop of Bartletts in the month of August, barreling the prematures up and shipping themaway. Owing to their tendency to ripen, if gathered green, the experiment has proved a success, these prematures usually bringing a fair price, while the remainder, thus thinned, grow to a better size.

POMACE AS MANURE.

6. Would a mixture of pomace and straw from cider mills be suitable to put round bearing apple trees? I am about to try it, but perhaps some of your subscribers can speak from experience.—Yours truly, J. B., *Meaford*.

There is no doubt a certain amount of value in apple pomace as a manure for fruit trees, for the apple skins, seeds and pulp contain a per centage of potash and phosphoric acid, elements which are especially useful as fertilizers for the apple orchard. But, in practice, the writer has found very little direct benefit from the application of them, probably because not in a condition to be taken up by the growing plants. In our opinion, it would be better to compost with other manure, and then apply after it is well rotted.

We shall be glad to hear from our readers on this subject, either from a scientific or a practical standpoint.

WINTERING GERANIUMS.

7. IN the January number of the HORTICULTURIST, "An Englishman" asks if geraniums can be wintered successfully in a frost-proof cellar, and is answered in the affirmative by Mr. Gilchrist. Geraniums may be wintered in a cellar in another way than by planting them in boxes. If pulled up by the roots in the fall, and hung from the cellar beams, top down, they will retain life till spring, when, if cut back and planted, they will grow and make vigorous plants the following season. For years I have carried over geraniums in this way, and have now a good supply for spring use depending from the ceiling of the house cellar. Care must be taken not to place them too close to each other. I "bunched" them together on one occasion when the leaves and stems mildewed, and their vitality was destroyed.

Owen Sound. R. McKNIGHT.

OPEN LETTERS.

APPLE WORMS.

Editor Canadian Horticulturist.

SIR.—In the end of the apple harvest of 1887, we had a considerable quantity of second-class apples which lay in piles under the trees, beneath a covering of straw, for about two weeks. We found them very much destroyed, for a small codlin worm, as we imagined, very small indeed, its burrow no larger than a pin hole, went hither and thither all through the apples in every direction—often at the mouth of the hole a yellow refuse looking substance. Hauling home the last pile or two we had to use the lantern, and were almost suffocated and blinded by tiny little black flies which we could not help connecting with the *so small* worm in the apples. Fortunately we have seen little or nothing of it since.—W. S. FORBES, *Ancaster P.O., Ont.*

KIND WORDS.

Editor Canadian Horticulturist.

SIR.—Would you be so kind as to send me some sample copies of the CANADIAN HORTICULTURIST, December number, if possible, on account of the so well prepared index, with which any intelligent and well-read man, interested in its subject matter, must be satisfied. I want to send one to my once dear pupil, the acting principal of the Grande Ligne Mission Institute, where I taught for nine years. They have a large farm and garden, and I want them to get acquainted with you. For my part I highly appreciate your intelligent, painstaking and tasteful work, and I wish for yourself and for our Association the best success.—Yours very respectfully, L. PASCHE, *Bryson, P.Q.*

FRUIT IN SIMCOE COUNTY.

Editor Canadian Horticulturist.

SIR.—We think your journal is improving in interest, especially in the care of plants, with their cultivation and preservation; likewise the best varieties of fruits for markets, and careful sorting and packing of the same, all of which is most valuable information for those who grow fruit for sale.

My grapes were killed with the frost last June, but they have made a good strong growth, and, if all is well, will do better another year. We shall keep them covered a little longer this year. The gooseberries were good; the Downings and Smith's Improved were a large crop. Currants were excellent, loaded down. The plums were a good crop but spoiled with too strong application of Paris green; we are led to think that there is a great difference in the strength of some Paris green; it varies in strength very much, so that it cannot be used without care. The cherry trees, sent one year ago last fall, have made small growth this season, although they look healthy and are doing well. Princess Louise apple was affected with something that stunted the growth. I think it will recover as it looks healthy. If all is well I will report another year upon the trees and plants received.—Yours truly, CHARLES HICKLING, SR., *Barrie.*

A WINTER JINGLE.

GRANDMA is softly crooning;
 Knitting at her stocking,
Her foot upon the cradle,
 The waukrif baby rocking.

Mother at the spinning wheel.
 Spinning fleecy yarn,
Jenny baking cakes o' meal,
 Father 's in the barn.

Nan is sentinel o' the fire,
 Her mission is the griddle,
Kate is milking in the byre,
 And Tam is at his fiddle.

Grandpa sits at the window
 Reading at his papers,
Daft Jock, with arms a-kimbo,
 Is cutting up his capers.

Lizzie sits upon her creepie
 Singing to her dolly,
Bub '' is resting very sleepy,
 Head pillowed on his Collie.

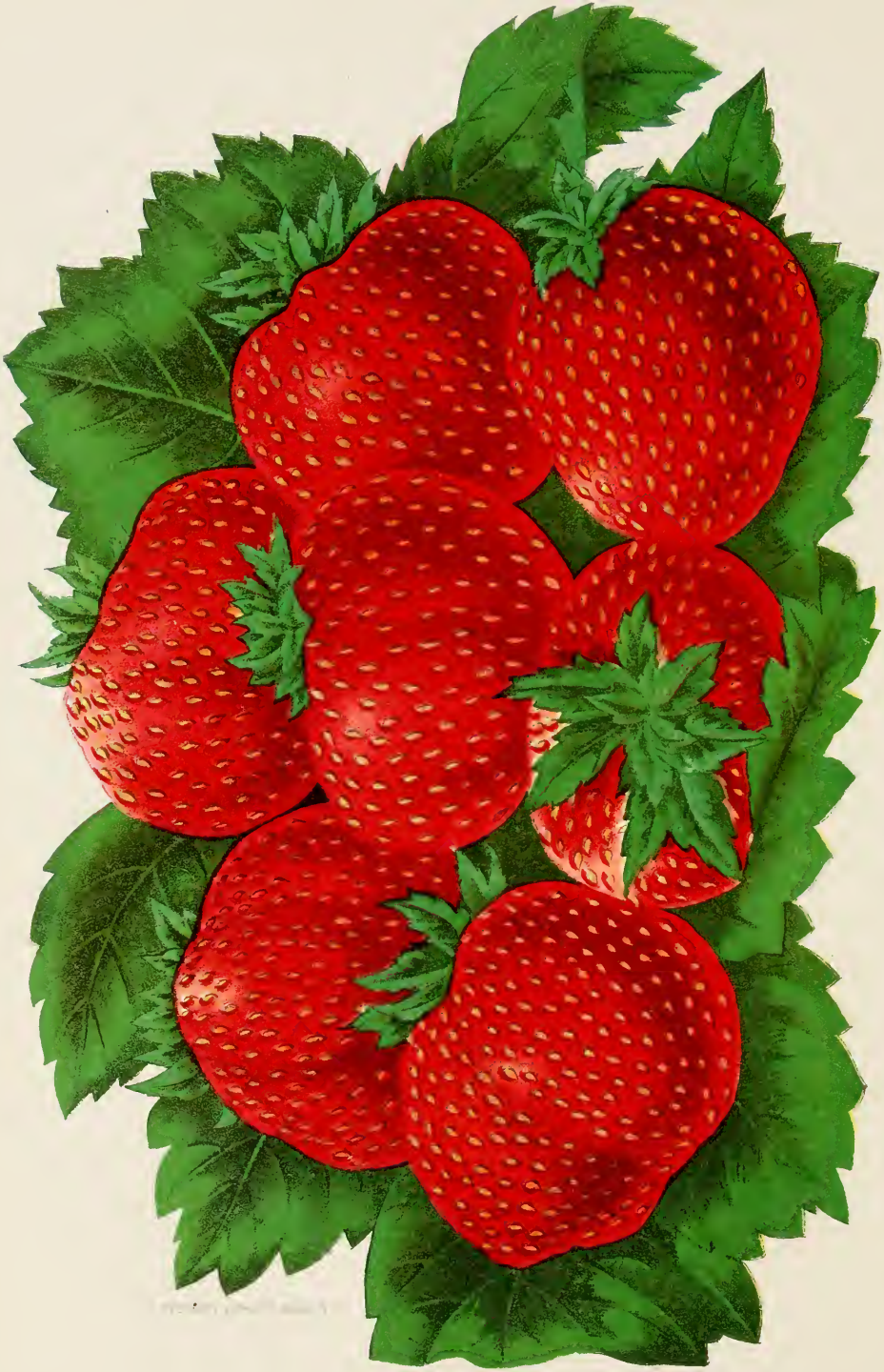
Oh, weel, I love our cosy cot,
 And our restful winter days;
A gift from Heaven is my lot,
 To the Giver be the praise.

Tho' all around is cold and gray,
 Swallows and summer bees
Soon again will find their way
 To the blossoms and your eaves.

Storm-blasts will soon be over,
 Soft air will come again,
And we'll gambol in the clover
 Through all the Summer's reign.

The lilies and the roses
 Will soon look blithe and gay
And we shall gather posies
 In the coming month of May.

Mount Royal Vale. GRANDMA GOWAN.



BUBACH'S No. 5.

THE

Canadian Horticulturist.

VOL. XIII. 1890 NO. 3.



THE BUBACH STRAWBERRY.

Of the newer strawberries, there does not seem to be any one which receives more general commendation than Bubach's No. 5. It originated with J. S. Bubach, Princeton, Illinois, and was sent out in 1886. It has been tried at many of the experiment stations, as well as by many fruit-growers, and the general verdict is that it is a valuable market berry, and will be popular with commercial growers.

It is a pistillate variety, and the plants are healthy, vigorous, hardy and very productive. It does not produce new plants as rapidly as some, but the fruit is uniformly large and excellent, being much more regular than the Sharpless, and in every way superior to that similar berry, the Ontario. Regarding its size, while averaging about the same diameter as the Sharpless, or about 1¼ inches, it is frequently grown 1½ and more inches in diameter. In weight, it averages about the same as the Jessie, according to the 6th Annual Report of the Ohio Experiment Station, in which it is stated that an average of three seasons showed 100 berries of the Bubach and of Jessie weighed thirty-five ounces, but of Sharpless, about forty ounces.

Mr. Geo. Dow, writing in the *Country Gentleman*, says of the Bubach:—

"I have grown the former for three years, and I have yet to find a single fault with it, and the reports I get from all over the country say the same.

It is a strong grower, free from rust or burn, produces plants enough, strong and vigorous, a large yielder of big, attractive fruit, and a variety that does equally well on all soils. I believe it, to-day, to be the best variety for general use that has has had a thorough test all over the country."

The following description of the Bubach was given in the *Bulletin No. 5*, of the Central Experimental Farm:—

"Fruit large to very large, roundish or broadly conical in form, sometimes uneven on the surface, but never misshapen; bright red; quality medium to good, not firm enough for distant market; ripens medium early. Plant very strong and vigorous, foliage healthy and withstands the hot, dry weather remarkably well; very productive. All points considered, it is one of the best sorts tested here for a near market or home use."

Now, we may say as much as we please about the humbuggery connected with the introduction of new varieties of fruits, but if we growers shut our eyes to those which have real excellence, we shall miss it in the end, and be like the man who "cut off his nose to spite his face."

HORIZONTAL ARM PRUNING OF GRAPE VINES.

MR. J. H. TRYON, of Willoughly, Ohio, in his practical treatise on "Grape Culture," gives the following reasons for preferring the Horizontal system of grape pruning:

First, it requires at least one-third less vines to the acre than are usually planted by the other systems, a saving of expense in the purchase of vines and of labor in the planting.

Second, a saving of labor in tying vines to the wires in spring, as the arms properly tied remain so, with but little additional tying for several years.

Third, the lower wire being three feet from the ground, and nothing allowed to grow below it on the vines or on the ground, there is plenty of room for free circulation of air underneath and among the foliage and fruit, one of the surest preventives of disease in vine or fruit.

Fourth, as the fruit grows just above the lower wire of the trellis, at a uniform height from the ground, it is, as a rule, uniform in size and quality, and also in ripening.

Fifth, convenience of gathering the fruit and packing for market, as it is taken from the vines.

Sixth, the fruit is all out of the way of dirt, in case of heavy wind and rain storms.

Seventh, it makes a symmetrical and sightly vine.

Eighth, it is thoroughly practical for vineyard and garden culture, and will insure a paying success for expense and labor bestowed.

Ninth, it has room to grow and develop its wood, foliage and fruit, and is essentially necessary for its health and productiveness.

Tenth, as the vines are allowed to grow along the top wire of the trellis, directly over the fruit, they serve as protection to the fruit from storms and the sun and heavy dews, thus obviating the necessity of the use of paper bags to avoid rot and mildew.

THE APPROACH.

THE time has come, even in our young Dominion, when more attention should be paid to the tasteful arrangement of the surroundings of our country homes. Some efforts were made in this journal, a year ago, to encourage the study of this pleasant art from an amateur point of view; and while it is always best to employ a landscape gardener, so many of our readers have neither the time nor opportunity of doing so, that we believe our remarks, however crude, will be appreciated.

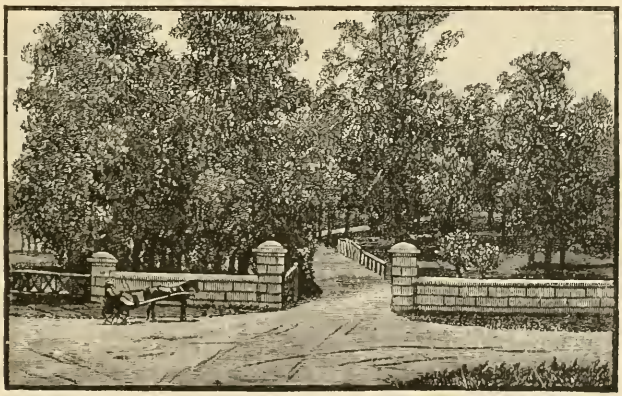


FIG. 21

We present in this number an engraving of an entrance and approach to a suburban home, which may give some hints to those who are planning out their grounds. In too many instances we see the house placed so near the public road, and the carriage drive so nearly in the front, and the land so bare of trees or shrubs, that the place more nearly resembles a public inn than the home of a wealthy farmer. In contrast, observe the effect of an entrance placed well at one side of the pleasure grounds, amid groups of beautiful ornamental trees as completely hide the house itself from view at the gateway. By this means the designer has well effected the retirement so suitable to a delightful country home.

Soon after entering, the approach is found to curve gently toward the house, which is presently seen from the most favorable point of view. A very common fault with carriage drives is in having them cut up the lawn to a needless extent. Sometimes either these or the walks, or perhaps both, are made to approach the house from two front gates, and to curve from each to the front porch, as if, indeed, bare ground or gravel were an ornament instead of a necessary evil. The true idea is to have as few of these walks and drives as possible, and by no means to make them conspicuous. If it is possible to have the carriage drive pass along the side of the house, and not cut up the front lawn at all, it would be better taste; but where it must go in front, it may be possible to so screen it with shubbery where it passes the front windows, that it will not break the view across the lawn from these important points of observation.

BEE-YARDS IN THE ORCHARDS.

YEARS ago, the opinion prevailed among fruit growers, that bees injured fruit and the insect was generally looked upon as an enemy of fruit growers. So widespread was this opinion, even among well informed people, that a formal resolution was passed, at one of the meetings of the Ontario Fruit Growers' Association, declaring the bee guilty of committing serious havoc among grapes and small fruit generally. She was thus assigned a place among the pests of the Pomologist. The fruit-grower has enough enemies to contend against, without adding to the list insects he should esteem his best friends, creatures that, instead of being accused of mischief, should be looked upon as important agents in the fertilization of flowers, and effective co-workers with the hybridist in producing new and valuable varieties.

The bee cannot be fairly classed among the fruit eaters, because "She ain't made that way." She uses only her tongue and her legs in collecting food while foraging. The only weapon at her command, capable of puncturing fruit, is her sting, and this she only uses as a weapon of defense. She never employs it to puncture fruit. To do so would be to put its owner's life in jeopardy. Nine times out of ten when a bee stings she loses her only means of defence and dies. Her jaws are formed with a view to the end they were intended to serve, namely, baking, moulding and building wax into beautiful symmetrical cells, and even this they cannot do until the wax is softened by a high degree of heat within the hive. She finds her food in the *flower*, not in the fruit. When hard pressed, she will appropriate the juice of a ripe raspberry, or a luscious grape, but not until a mischevious wasp has already punctured them, or a destructive bird partially destroyed them; but not then, with advantage to herself or the family for

which she provides. Such delicacies are not good for her, and, if largely indulged in, end in death. Like a baby she relishes the forbidden for a time and will make a meal out of a rotten apple or a decaying pear; but not by any weapon at her command can she conveniently or safely break the skin of a ripe fruit.

It is pleasant to know that among enlightened Pomologists, the old-time prejudice against the bee is fast giving place to an appreciation of her value to the fruit-grower, and not a few of them are establishing bee yards in their orchards and fruit fields, with the view of insuring the better fertilization of the fruit blossoms. I venture to predict the time is not far distant when this practice will be followed to a much greater extent than it now obtains. Ten years experience in fruit growing and bee culture, carried on in the same orchard, a watchful eye upon her movements, and some scrutiny into her anatomy and physiology, has changed my own suspicions into admiration, and established in my own mind a firm belief of the bee's usefulness to the orchardist, and I am ready to recommend every fruit-grower in the land to keep bees if he desires to secure the greatest return for his labor, in orchard and fruit field.

If time permits and you accord me space, I may, in future, have something to say on bees as fertilizers.

Owen Sound, February 1, 1890. R. McKNIGHT.

RULES FOR THE GARDEN.

MR. GEO. ELLWANGER, of Rochester, in his new book entitled "The Garden's Story" gives the following good rules for managing the ornamental garden:

"I. Whatever is worth growing at all is worth growing well."

"II. Study soil and exposure, and cultivate no more space than can be maintained in perfect order."

"III. Plant thickly; it is easier and more profitable to raise flowers than weeds."

"IV. Avoid stiffness and exact balancing; garden vases and garden flowers need not necessarily be used in pairs."

"V. A flower is essentially feminine, and demands attention as the price of its smiles."

"VI. Let there be harmony and beauty of color. Magenta in any form is a discord that should never jar."

"VII. In studying color effects, do not overlook white as a foil; white is the lens of the garden's eye."

"VIII. Think twice, and then still think, before placing a tree, shrub or plant in position. Think thrice before removing a specimen tree."

AT THE FARMERS' INSTITUTES.

EXPERIENCE IN EVAPORATING APPLES.

AT the Farmers' Institute at Warkworth, Mr. John Stone, of Norham, said he had been running a small evaporator with great profit. It was of a size large enough to take about sixteen bushels at a time. It was run with very little expense, one girl with a good paring and coring machine being able to prepare about six bushels per hour for the evaporator.

His favorite apple is the Golden Russet, as it yields eight and one-half pounds of sliced evaporated fruit to the bushel; the only other apple which yields more pounds per bushel is the Canada Red, which gives nine pounds. Next comes the Swayzie Pomme Grise, yielding eight pounds, while the Northern Spy only yields six and one-half pounds, and the Colvert only five and one-half.

Mr. Stone has found evaporated apples profitable selling at nine and ten cents per pound; but he has found the greatest profit in evaporating apples whole, of course peeled and cored. He got the idea from a friend in England, who noticed them in London, brought in from Holland, and sold in fancy packages, laid nicely in rows. He has tried it, and with the most excellent results.

The slicer being removed the parer and corer was used, and it was found that the Golden Russet, in this way, would yield as much as twelve pounds per bushel. This and the Swayzie Pomme Grise were the only two varieties which could be successfully evaporated whole. He had put them up in a box two feet long, ten inches wide, and thirty inches high, holding about fifty pounds, and had shipped them to Ottawa and Toronto, where they sold readily at ten and twelve cents per pound, or about two cents per pound in advance of the ordinary sliced evaporated apples.

For all purposes he claimed that the Golden Russets, evaporated whole, were the most desirable, as they cured and kept perfectly, retaining more of the natural condition of the fruit. Spiced and steamed or stewed they were soon made into a delicious sauce for the table, or could be made up in pies or dumplings.

Surely this matter is worth considering, for it would appear that an unlimited market could be found for apples prepared in this way. The only drawback is that only first-class apples would answer the purpose.

PRUNING TREES.

At many Farmers' Institutes the question of the best TIME for pruning is frequently raised. Now, if a tree is kept in shape by light pruning from year to year, the work can be done at any time; but if heavy pruning must be done, more consideration is required. It is most conducive to the vigor of the tree to do such pruning while the tree is dormant, either in fall or

spring; but in all cases, large cuts should be well painted over to keep the wound from cracking. Red paint, mixed without lead, with boiled linseed oil, answers a good purpose; as also does shellac, thinned with alcohol to the consistency of paint.

If, however, the trees are sufficiently vigorous, and a check is needed to throw them into bearing, summer pruning may be useful, having also the advantage that wounds made between the middle of June and the middle of July will heal readily, without any paint.



FIG. 22.



FIG. 23.

The MANNER of pruning is all important. Symmetry of form should be considered, modified by the natural habits of a tree. A tree, which is inclined to grow upright, should not be compelled to spread. Of all forms, the pyramidal is surely nearest perfection; for by this mode, few water-sprouts will come, and large cuts need not be made. The idea should rather be to thin out the smaller limbs, than to remove larger ones.

The preceeding remarks are well illustrated in the accompanying cuts of trees, one of which has been almost ruined by a murderous method of butchery, and the other pruned on the principles laid down.



FIG. 24.

It is a very bad practice to cut off branches leaving a stub which cannot heal, and in consequence must rot into the heart of the tree as in Fig. 23.

Cuts should be made close and smooth, and then the bark will readily cover the wound.

The tools most useful in pruning are a sharp pruning knife, a fine toothed saw, and a pair of tree pruners. This latter instrument is invaluable. It has great power, and with careful annual pruning should do almost the whole work; and that, too, with the greatest ease.

FERTILIZERS.

At some of the recent Farmers' Institutes, Mr. Raynor, B.S.A., recommended as green manures for the orchard, (1) rye, sown in the fall and

plowed under in the spring, (2) clover, and (3) buckwheat. The latter could be sown rather early and plowed under, and this would be especially useful in destroying quack grass and Canada thistles.

Sometimes, according to Mr. Raynor, commercial fertilizers are not kept up to the formula but are of very inferior quality. In order to prove this, it is best to send samples of any fertilizer we are using to the Experimental Farm, at Ottawa, where they will be analyzed free of charge. The actual value of the fertilizer can then be easily reckoned by knowing the following market-value of the various constituents, viz. : Nitrogen twelve to eighteen cents per pound; phosphoric acid, five to nine cents; potash, three to five cents. The value of a commercial fertilizer further depends upon the amount of the above elements which are in a soluble state, or available condition for plant food.

Superphosphate is especially difficult of advantageous application, owing to the fact that the presence of lime in soils tends to render this soluble phosphoric acid insoluble. Superphosphate is found to give the best results on clay soil.

Nitrogen is one of the important elements of commercial fertilizers, but, on light soils, it is apt to leach away, unless there is some green manure to retain it. Nitrogen is largely brought down from the air in the shape of nitric acid. It is also supplied in stable manure, and is the principal constituent of the urine of animals. This latter valuable fertilizer is frequently allowed to waste in the stables, and absorbents should be carefully employed to absorb it. Gypsum is frequently used as an absorbent, and is invaluable for fixing the nitrogen in the form of nitrate, a condition of the nitrogen which is soluble, and thus available for plant food.

Nitrate of soda can be purchased as a special fertilizer for the orchard and garden and is found to be highly beneficial in its immediate effects on growing crops; but, on account of its being soluble, it needs to be applied in the growing season, that it may not be carried away beyond the reach of the roots of the plants.

The fact is that, in gardening or orcharding, we need to make use of every kind of manure within our reach, for the secret of success in this line pre-eminently is found in the abundant use of fertilizers in connection with constant cultivation.



NOTES FROM THE WESTERN NEW YORK HORTICULTURAL SOCIETY.

BY A SPECIAL REPORTER.

THE thirty-fifth annual meeting of the above society was held at Rochester, January 22nd and 23rd, with a very good attendance, and the session was of great practical value and interest to all present. We give some of the most instructive points brought out in the essays and discussions.

The officers elected were Patrick Barry, President; S. D. Willard, W. C. Barry, W. Brown Smith, and J. S. Woodward, Vice-Presidents; John Hall, Secretary and Treasurer. The county reports were unanimous as to the unfavorable record of last season. The heavy frost late in May, almost completely ruined many crops, as the frost was followed by a cold, wet summer. Still, the fruit-growers, with their proverbial cheerfulness, did not seem to feel particularly discouraged, as they hope for better things this coming season.

State Entomologist Lintner, presented a paper on "Recent Experience with Insect Pests," in which fruit-growers generally, are considerably interested. We present some brief extracts: "It seems probable that in the next few years the most harmful of the insects would be brought under control. By the aid of the force pump we hope to bid defiance to the plum curculio and insects that feed on the foliage of fruit trees.

"The old methods of insect destruction were compared to the force pump, as the Gatling gun compares to the old flint-lock musket. Regarding insecticides, it was policy to use as little arsenite as possible; London purple was less harmful to some trees than Paris green, while white arsenic should never be used. Pure water, without trimmings, when thrown with sufficient force, was efficient as an insect preventive, in fact it was the best remedy against the Rose slug. The Bordeaux mixture is to be recommended, and where it was used for potato rot, it will also be efficient against the potato bug at the same time, if London purple is added to the mixture.

"A new pear insect made its appearance at Rochester, in June, 1888, being of the case-bearing variety, which burrowed into the fruit. A bark-borer that was found on peach trees was mentioned as being what is commonly known as the elm bark beetle. It was formerly supposed to be the cause of the peach 'yellows.' As all of these insects are hard to reach, the only safe remedy now known is to burn the infected tree. However, experiments are now being made to determine whether or not kerosene is injurious to the trees, and if it is not, it will be an excellent remedy for these bark-borers, which seem to be on the increase.

"The ravages of the destructive grape-vine beetle might be checked by the use of Paris green water, as could also a caterpiller, which lately had been reported as injurious to pear buds. In the matter of spraying, great care

should be exercised in the use of the poisons, which, as quality greatly varies, should be procured only of reliable dealers; twelve ounces of Paris green, dissolved in two hundred gallons of water, was said to be effective against the codling moth. For spraying plum trees, two ounces of London purple to one hundred gallons of water, was recommended; the purple solution, however, should never be sprayed on peach trees, as it seemed much more injurious to the foliage than Paris green."

In reply to various questions it was stated that on heavy loam or clayey soil, dwarf pears, especially the Duchess, Kieffer and Anjou, were by far the more profitable. On light gravelly, or sandy soil, the standards were the best.

"Relative to Evaporation of Fruits," was the subject of a paper read by Michael Doyle. Mr. Doyle said that the failure of the apple crop in Western New York, drove the evaporators to Michigan for a supply of apples. The Michigan apple sold as well in the market as the New York apple. There was a demand for fancy evaporated fruit, which ought to be an incentive to evaporators to try to supply this demand. He complained that were was a tendency to overdo the business, and the competition in the evaporating concerns was very close. Mr. Doyle gave the following estimate of the amount and value of evaporated apples, in the leading apple-producing States: New York, Ohio and Michigan, for last year : Pounds 18,000,000, value, $712,000.

Mr. Doyle spoke of the measures taken by the German government to keep evaporated American fruit out of the country. The fruit was not allowed to be placed on sale until it had been analyzed by a competent chemist. Mr. Doyle thought the German government desired to see the industry started by the German people, and, therefore, did everything they lawfully could to keep out American fruit. The effort of the Germans, however, to evaporate fruit, was a failure. When Americans were offering fruit at seven cents a pound, in the German markets it was costing the Germans ten and eleven cents to produce a pound of fruit ready for use. The American fruit was looked upon with suspicion, because of the fact that it was dried upon galvanized wires, and it was feared that it contained zinc in quantities sufficient to injure persons using it. He favored the use of something in place of the galvanized wires.

During a talk on fertilizers, it was stated that formerly hardwood ashes from Canada was about the best fertilizer to be had, but that the Canadians were getting wakened up, and they had begun to "doctor" their ashes, so that within the last two years, the quality of the ashes had fallen off.

A communication from W. W. Dunlop, of Montreal, invited the members to attend the Convention of the Dominion Fruit Growers, at Ottawa, February 19th to 21st, and asking the Society to send a judge to act with another judge from the Massachussetts Society. S. D. Willard, of Geneva, was selected in accordance with this request.

(To be continued.)

THE DOMINION CONVENTION OF FRUIT GROWERS.

ORGANIZATION—ENCOURAGEMENT OF FRUIT GROWERS—BRITISH COLUMBIA AS A FRUIT COUNTRY—TRANSPORTATION OF FRUIT, ETC.

THIS first Dominion Convention of fruit growers was a complete success. Indeed so important was it regarded as a means of furthering the interest of the fruit industry of Canada that a permanent organization was effected under the name of "The Dominion Horticultural Association," and a grant has been requested from the Dominion Government for the sum of $3,000 per annum to cover the necessary expenses. The following officers have been elected for the first year, viz.: President, Prof. D. P. Penhallow, of Montreal; Secretary-Treasurer, Mr. W. W. Dunlop, of Montreal; Vice-Presidents, the presidents of the provincial fruit growers' associations; Statistician, Mr. Geo. Johnson, of Ottawa.

Anyone may become a member of this Association upon payment of the annual fee of $2.00 and be allowed to compete for the very liberal prizes offered for fruit exhibits at the annual meetings; but members of any one of the provincial associations may become members of this one on payment of $1.00. Voting power is, however, confined to delegates, and the votes are distributed among the various provinces in the following manner, viz.: Ontario, six; Quebec, four; Nova Scotia, three; British Columbia, two; and one each to the Provinces of Manitoba, New Brunswick, Prince Edward Island, and one to the North-West Territories. A larger number of delegates may be sent, but the number of votes is fixed as above.

We have not sufficient space to give anything like a complete report of the proceedings, which have been taken down verbatim and will be published in due time, but a few notes may be of interest to those who had not the privilege of attending.

The meeting was opened by the Hon. John Carling, who, in a few well chosen words, welcomed the delegates to Ottawa, and expressed the deep interest which the Dominion Government had taken in the extension of the fruit industry and the readiness with which both sides of the House had provided the grant required for the successful conduct of this convention.

Prof. Penhallow, in his address as presiding officer, gave some account of the various provincial organizations, and, in speaking of the Ontario Fruit Growers' Association, paid it a high tribute for the excellent work which it had accomplished in the introduction of new and valuable varieties of fruit and in the publication of a monthly journal which he characterised as the best work on Canadian horticulture extant.

Prof. Saunders, in his address, said it might be interesting to know that the Ontario Fruit Growers' Association owed its first legislative grant to the

agency of the Hon. John Carling, who introduced a bill into the Ontario Legislature for a grant of $500; and now he was endeavoring to give the same kind of encouragement to fruit growers in a broader way through this convention and through the experimental farms.

One of the most important ends in view in the conduct of these farms was the testing of new fruits. He did not believe that many of the Russian fruits would be of value in those regions where the best varieties are already found to do well; but where these fail, the Russians would be found to be of the greatest value. In small fruits, also, he was confident that many kinds now being tried at the farms would prove of great excellence.

Fruits may be grown in many parts where now they are supposed to fail. Apples can be grown in many other valleys in Nova Scotia besides the Annapolis valley, and many varieties of fruits which are supposed to fail in the vicinity of Ottawa, will succeed. In the North-West even where the Duchess failed, he believed there would be found varieties of Russian or other origin, which would grow and give the inhabitants the successive fruits they so much need.

He had once had a prejudice against the quality of British Columbia apples, but on testing such varieties as the Fameuse, Spitzenburg and other well known varieties, he had found that the quality was little behind that of Ontario apples, and, in size, they far exceeded them. The Spitzenburg, for instance, in British Columbia was twice the size of the Ontario sample, the Russet half as large again and so on. He had never seen pear, plum and cherry trees load, as they do there, and the pear blight and plum knot were, so far, unknown obstacles in the way of the fruit-grower. With such opportunities, he believed that very soon British Columbia would cease to import and instead begin to export many kinds of fruit.

During the first evening there was a very full house, it being a united meeting of dairymen and fruit-growers to consider the important subject of cheap, careful and rapid transportation of our products to home and foreign markets. This subject was opened by Mr. A. McD. Allan, who in a clear and unreserved manner stated the many grievances of the shipper against the steamboat and railway companies. We will give an outline of this address in our next next number.

Fruits

THE HOME FRUIT GARDEN.

A SUBSCRIBER asks how to lay out a fruit garden of half an acre, for home supplies. This is so much a matter of taste, and of special requirements, that it would be impossible to give any plan which would be at all likely to meet with universal approval. A few points, however, on this subject, may interest our readers.

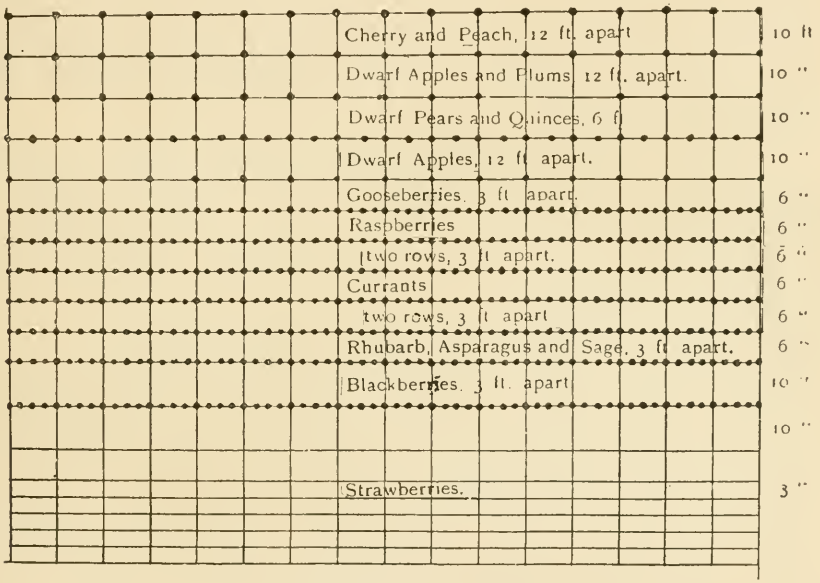


FIG. 25.—THE FARMER'S FRUIT GARDEN.

First to be considered is the *location*. It should be near the house, where it is of easy access for gathering the fruit as it is needed, so that it may be always fresh. One advantage of having it somewhere in the house-yard is in dispensing with a fence. Nothing so interferes with the careful cultivation of a garden as a close fence, that excludes all horse cultivation. The time is gone by when it pays to hire a man to dig the garden with a spade, and with the same instrument to care for the rows of small fruits. We cannot afford such expenditure for labor, and the consequence is the plantation falls into neglect, the owner is discouraged, and the fruit garden becomes a thing of the past.

Secondly, in regard to *shape*. The fruit garden should be longer than broad, for convenience in horse cultivation. One hundred feet wide by two

hundred feet long, will occupy about a half acre of ground, and be a very suitable shape.

Thirdly, regarding a plan for planting. We have drawn out one that may suit some persons and possibly furnish useful hints to others. It will be observed that the whole is planned for cultivation in two ways with the horse and cultivator, so that very little hand work is necessary. Dwarf trees of the apple and pear are introduced, because they are much more suited for the garden than standards, and it is presumed that no orchard is grown separately. The distances apart of the rows are shown on the side, and the distance in the rows are given between the lines. The amount of stock required may, therefore, be easily calculated, and need not be written out here.

Fourthly, a few words about varieties of fruits suited to home use may be in place just at this season of the year, when so many are buying their stock. In doing this we will have in mind especially those suited to home uses rather that market.

Strawberries.—Crescent, Bubach's 5, Jessie and Manchester.

Raspberries.—Black: Souhegan Gregg and Hilborn. Red: Highland Hardy, Turner, Shaffer and Cuthbert. Yellow: Brinckle's Orange and Golden Queen.

Currants.—Red: Fay's. White: the White Grape. Black: the Black Naples and Lee's Prolific.

Blackberries.—Early Harvest, Kittitinny (tender) and Taylor.

Gooseberries.—Houghton, Smith, Downing and Industry.

Grapes.—Black: Moore's, Worden, Roger's 4. Red: Lindley, Brighton and Salem. White: Lady, Jessica and Niagara.

Apples.—Yellow Transparent, Early Harvest, Duchess, Gravenstein, King, Wealthy and Northern Spy.

Cherries.—Early Richmond, Montmorency, Late Kentish. The large English cherries, such as Gov. Wood, Yellow Spanish, Knight's Early Black, Great Biggarreau, etc., are unsurpassed for dessert purposes where they succeed, but that is only in certain limited sections of Ontario.

Pears.—Rostiezer, Bartlett, Flemish Beauty, Duchess, Lawrence, Beurre d'Aujou, Winter Nelis. This selection will give a succession of delicious pears for the table, from August to April of each year.

Elsewhere, in our pages, our readers will find valuable lists of plums from which to select. This list is not given as embracing all the valuable kinds for home uses, but where they succeed they may be depended upon as giving good satisfaction. In our next report, for the year 1890, some valuable lists of varieties of apples and pears adapted to the different parts of our Province are expected to appear, which will, no doubt, be of great value to intending planters; there will also be a carefully prepared list of all fruits published, as soon as it can be prepared, from which also those best adapted to home uses may be readily seen.

THE CANADIAN APPLES.

IN THE HORTICULTURIST, for January, that you kindly sent me, I find notes by Prof. J. L. Budd, on some Canadian apples, and by another correspondent on the Switzer apples. Living, as I do, near the northern line of Iowa, I thought a few words from me might be of some service to your Northwestern readers.

The Switzer is far from being as hardy here as the Duchess, and on our black soils it is much given to blight, and the fruit drops easily before it is fairly ripe. It is a good bearer and a good apple, but has too many faults to make it valuable for the North-West. The Montreal peach is not nearly so hardy as Duchess, and has so far proven a tardy bearer. McIntosh Red, Canada Baldwin, Fameuse Sucre, and Winter St. Lawrence, have all proven failures on and north of the 43rd parallel.* None of them are as hardy as the Fameuse, and the bearing orchard-trees of this variety were either killed or severely crippled by our recent severe winters.

I am often tempted to try some tree of Canadian origin, but our experience thus far is not favorable to the experiment. However, I still feel like trying seedlings of the Fameuse that are proving, when root-grafted, to be hardy in northern Canada. The most promising of the new sorts that I have tried is a seedling of the Duchess, now twenty years old; the fruit is of good size, light to dark green in color, just the right acidity for cooking, and when mature an agreeable eating apple. The tree is fully as hardy as the Duchess, and an excellent bearer, from latitude forty-three to forty-five. In your climate this would undoubtedly be a good winter apple. Several of the Russian varieties are proving hardy here, and we are still hopeful of valuable results from our experiments with them.

Charles City, Iowa. C. G. PATTEN.

VARIETIES OF GRAPES TO PLANT FOR MARKET PURPOSES.

TO profitably grow grapes for market, only a few varieties are required and to name those varieties suitable to all locations is a difficult question, as a slight difference in location, soil, or culture, will produce results so widely different.

The culture of no fruit, perhaps, gives rise to a greater variety of opinions than that of the vine. For this reason it is safer for those who intend planting to find which varieties succeed best in their own locality.

* NOTE BY EDITOR.—In Canada these varieties succeed north of the 45th parallel.

However, for market, I would select the varieties in the following pro portion for 1,000 vines: 100 Worden, 200 Concord, 100 Wilder, 200 Lindley, 200 Agawam, and 200 Niagara.

Some may say, why are Delaware, Brighton, Salem, Moore's Early or Pocklington not included. For the following reasons: Lindley will produce more to the acre than Delaware, ripens at the some time and is more salable ; it will produce as much as the Brighton, and improve by hanging when fully ripe, while the Brighton fails in both color and flavor.

The Lindley and Agawam fills the place of Salem in the market, are as productive, and not as subject to mildew, or as liable to burst with rain. Moore's Early can only be made to produce one-third as much as Worden, and is not as good in flavor. Niagara fills the place of Pocklington in the market and is more productive.

Winona, Ont. M. PETTIT.

PLUMS FOR MARKET.

A GOOD list of plums for market purposes, as also for shipping, are: Lombard, German Prune, Washington, Yellow Egg, Imperial Gage, Reine Claude, Coe's Golden Drop, Quackenbos, Niagara, Smith's Orleans, Duane's Purple, Pond's Seedling, Glass' Seedling, Bradshaw, Lawson's Golden Gage, Gen. Hand, Victoria, French Prune. These for an orchard of 500 or 1,000 trees, I would divide about equally. For an orchard of 100 trees, I would plant as follows: Washington, Niagara, Lombard, Glass' Seedling, Yellow Egg, Reine Claude, Coe's Golden Drop; these being very productive varieties for that number of trees, and the quality is good enough for either table, cooking, or market. All of these I have found perfectly hardy and good bearers, good shippers, and selling at highest prices. There are several plums claimed to be curculio proof, but I have found none entirely free. There are some that seem more free than others from curculio, such as Smith's Orleans, Columbia, Lombard. I find one of the great secrets of profitable plum-growing is to plant the best kinds, give them good cultivation and plenty of fertilizing material to keep good growth in the trees; good cultivation and fertilizers being an enemy to the destructive diseases as black knot and rot. Even the curculio dislikes cultivation, grass and weeds being a hot-bed for the insect, while neglect of cultivation is death to profitable plum culture.

Winona, Ont. GEORGE CLINE.

SMALL FRUITS TESTED IN MICHIGAN.

MR. T. T. LYON, who has charge of the sub-station of the Michigan Agricultural College Experiment Station, reports his experience in a recent bulletin. In his opinion, the following *Strawberries* are best suited for the family garden, provided that quality is the chief consideration: Alpha for early, May King, Belmont and Barry for medium, and Mount Vernon to close the season. For market, he would grow Crescent or Haverland with Miner as a fertilizer, Bubach, No. 5, with Logan to fertilize it, and Mount Vernon to close the season.

Of the Haverland, he says this is one of very recent varieties which is attracting much attention. It has shown itself at least fully as productive as the Crescent, larger size and better flavor. The plant also is healthy and vigorous. It is a pistillate.

Of the *Raspberries*, Mr. Lyon commends for the family garden the Turner, Herstine, Golden Queen and Cuthbert; and of the black caps, Souhegan, Hilborn and Nemaha, with Shaffer for canning. For market he might, perhaps, substitute the Gregg for the Hilborn.

New or Little Known Fruits

THE LADY RUSK.

WE have nothing to say concerning this new introduction of William Stahl's, except what he himself says of it, as it has not yet been tested by any of the Experiment Stations, but as plants have been freely distributed among them, we shall receive their unbiased judgment after this summer's fruit season.

The introducer claims for the Lady Rusk the following important qualities: (1) vigor of growth, (2) power of withstanding drouth, (3) freedom from rust, (4) earliness, several days ahead of Crescent, (5) large size, (6) firmness, (7) productive, ness, equal to Crescent.

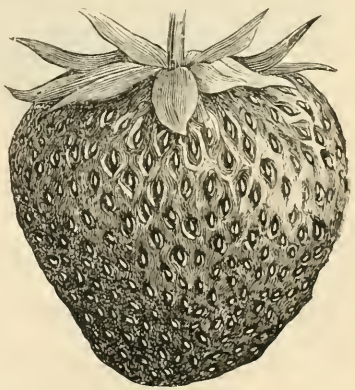


FIG. 26.—THE LADY RUSK.

Mr. Stahl says he now controls the largest acreage of strawberries of any man in the United States, and thinks he is qualified to judge of the kind that will be most profitable to growers. Such a berry he believes he has found in the Lady Rusk, a cut of which accompanies this article.



FIG. 27.—THE PROGRESS RASPBERRY.

THE PROGRESS RASPBERRY.

WE are favored by that enterprising nurseryman, Mr. J. T. Lovett, of Little Silver, N. J., with cut of a new raspberry, called the Progress, which he highly commends for its earliness and productiveness.

Mr. Lovett describes it as being of good size, jet black, of highest quality; canes of very strong growth, very hardy, and wonderfully productive. Though resembling Souhegan, he claims that it is earlier, firmer, a stronger grower, and that it yields almost double the quantity of fruit.

We do not find it mentioned in the reports of the Experiment Stations.



SOME POINTS ON GROWING HARDY PERENNIAL PLANTS.

THIS is the season when the future beauty of our garden should be planned. While this is equally true of both vegetable and flower garden, it is more especially of the latter of which I wish to speak. While much can be said on the flower garden as a whole, there is a particular branch to which I desire to call the attention of the readers of THE HORTICULTURIST.

A fact that is not generally known, except to professional growers, is that many of our finest hardy herbaceous perennials are as readily raised from seed as the most ordinary of annuals. Where any number of plants is to be used like a variety of Campanulas, Delphiniums, Poppies, etc., this is by far the more desirable way of securing a fine collection at an expense hardly worth considering, for a packet of seed of most every hardy subject, containing from fifty to one hundred sound seed, may now be had from any extensive seed house, for no more, often less, than a single flowering plant is usually sold for by the nurserymen.

One reason that this method has not heretofore been largely adopted, is that it is only comparatively recently that seeds of the better perennials could be purchased at a low rate,—that is, of such subjects as do not naturally bear seed in every one's garden. Again, it is commonly supposed that, unlike annuals, these perennial seedlings must be grown until the second year before they bloom; this is true only under certain conditions. If the seed is sown in the summer or autumn of one year, naturally no bloom will be had until the following season, the plants, even then, being a year or less old.

The proper way, however, of treating these plants, is to sow the seed about the middle of March, under glass, either in a green-house, hot-bed or sunny window, in a shallow box, and when the plants are above ground,

they should be treated exactly like tender annuals, or early tomato plants; prick them out in other boxes, giving a little space, and as the season advances give them air, to harden them somewhat. See that they are in such a situation that they do not become spindling and weak. Usually, if the seedlings are given space of an inch each way in the second box, they will grow along all right until they can be planted out, although I always think that it pays me, in the long run, to transplant them the second time, before they are put outside; the planting-out must not be done until the weather is warm and settled, for the seedlings are very tender at first, even if they readily withstand the following winter's cold.

From these inside boxes they can be planted in the garden wherever they are desired to bloom, which they will do the same season, although, of course, not so strongly nor so fully as when they become well established.

This starting them under glass, however, is not what I would most strongly urge. It is a good way when one only wants a few plants, but when you would like a dozen or more of as many different kinds as possible of those mentioned below, why then I wish to advise you to sow the seed out of doors. Select a spot that is somewhat shaded, during part of the day, dig the soil thoroughly, and if heavy, apply a two-inch dressing of fine coal ashes, well worked into the soil, Have the spot large enough to give a whole row to each kind of seed, at one end placing a label, having plainly written upon it the name of the seed and the date of sowing.

Sow the seed as early as the ground is in condition, quite thinly, as to economize labor, the plants, after coming up, can be left in the seed rows, which should have been placed about ten inches apart. In case more plants have come up than are really needed, pull out the weakest, thin out crowded spots leaving the ones wanted at as uniform distances apart as possible, transplanting where necessary, in order to fill up empty spaces. During the summer this bed of seedlings should be carefully weeded, and the ground stirred, and the growth of the plants will be very satisfactory. Through the winter a little strawy manure can be placed over them for safety, and in the spring they can be transplanted to their flowering places, and an exceedingly fine collection of hardy plants is had at but little expense, either of time or money.

By taking this means of supplying the hardy garden, there is the possibility always present that you are just as liable to secure fine new varieties as any nurseryman; this really is a most fascinating point in the matter of seedling growing. Then again, the plants gained in this way are, oftener than not, likely to far exceed in vigor and blooming qualities, such as are only a part of an old clump that was divided.

The following is quite a complete list of such perennials as may be easily raised from seed; the first named being such as are desirable for their flowers, while the second list names those which present a striking appearance mainly in the matter of foliage.

Monkshood (*Aconitum*), Achillea, Adonis, Alyssum, Snapdragon (*Antirrhinum*), Windflower (*Anemone*), Anchusa, Arabis, Columbine, (*Aquilegia*), Sweet Woodruff (*Asperula*), Armeria, Auricula, Baptisia, Coreopsis lanceolata, Canterbury Bells (*Campanula*), Candytuft, Cerastium, Cowslip, Crucianella, Larkspur (*Delphininm*), Foxglove (*Digitalis*), Garden Pink (*Dianthus*), Gentiana, Golden Rod, Edelweiss (*Gnaphalium*), Hollyhock, Hibiscus, Lavender, Lupinus, Evening Primrose (*Ænothera*), Paeonia, Chinese Bell Flower (*Platycodon*), Polyanthus, Phlox, Poppy, Potentilla, Pyrethrum, Primroses, Dame's Violet (*Rocket*), Sasifraga, Day Lily (*Funkia*), Æthionema, Sunflower (*Helianthus*), Sweet William, Sweet Scented Clover (*Trifolium suaveolens*), Flame Flower (*Tritoma*), Tunica and Valerian.

The following have foliage, which, with their strong habit of growth, makes the plants more noticeable than do their flowers, which, however, are not unpleasing:

Acanthus, Bocconia, Ferula, Geum, Rheum, Glaucium, Arundo, Erianthus, Eulalia, Gynerium, Gunnera and Heracleum.

A number of hardy climbers are also grown from seed in the same manner as above directed: Mountain Fringe (*Adlumia*), Boston Ivy (*Ampelopsis Veitchii*), Dutchman's Pipe (*Aristolochia*) Climbing Asparagus (*Asparagus Broussoneti*), Trumpet Creeper (*Bignonia*), Clematis, Kenilworth Ivy, Everlasting Pea (*Lathyrus*), Wistaria and Bitter-sweet (*Celastrus*).

While all of the plants here mentioned are doubtless hardy in nearly every section of Ontario, yet it is the part of wisdom not to take too many chances, or to expose beautiful plants to too severe exposure, as they will grow and bloom far better if a light covering of marsh hay, strawy manure or similar material is given them.

La Salle, N.Y. E. E. SUMMEY.



THE CLEMATIS IN ONTARIO.

MY DEAR SIR,—Yours of the 7th inst. is at hand *re* Clematis and their adaptation to our climate, etc. In reply I may say that some three or four years ago I did essay the culture of some improved Clematis in our surroundings out of doors, and did promise at that time to give further details respecting the same at some future time. I suppose that means now. I am really delighted by the tenaciousness of your correspondent's memory as to now require the fulfilment of that promise. But it is doubtless a further example of the force of the truth, that if you at any time in your life make a promise of pleasure to a fruit-grower, he will never forget it. I have tried to carry the culture of the beautiful Clematis on to the present, but the results reached have not been by any means encouraging, either to myself or others. I am deeply grieved for this. But, just in our location, the climatic conditions for the finer improved large-flowering varieties from Europe and the East are not at all suitable, whereas a short distance away these conditions might be far more so. I was at Sarnia, a beautiful town on the River St. Clair, just at the foot of Lake Huron, last summer, and I was perfectly astonished and delighted to see on one gentleman's lawn a most gorgeous *C. Jackmannii* and, opposite, a gay and beautiful *C. Henrii* in profuse bloom, and these fine varieties were in several parts of the town flourishing in great beauty. This showed me that the conditions vary and that we had not got the right ones. I shall now attempt to sum up my experience in the following brief particulars:—



FIG. 28.—(1) C. COCCINEA, (2) C. CRISPA, (3) C. LANUGINOSA, (4) C. JACKMANI.

First, of the improved showy sorts the blue Viticella and the coral Coccinea are the only ones that will endure the conditions of our climate out of doors. The first of these is a most gorgeous sort and apparently as hardy

as a native. For weeks during summer it is a perfect mass of dark blue velvety bloom and will fill a trellis twelve feet high, but the Coccinea is delicate in its constitution and growth, and flowers sparingly.

Secondly, that none of the large flowering foreign varieties have succeeded here out of doors, but of those tried *Jackmanii* is the best.

Third, the native American varieties including *C. Crispa* and *C. Virginiana* being small flowering varieties, but immense growers will do well in almost any position, and with almost any treatment, and will succeed in making splendid covering for arbors, old buildings, fences, etc.

Fourth, we are satisfied that our climatic conditions without extra care of planting, covering, etc., are not at present or are likely to be for some time to come, suitable to the growth and success of improved varieties of the Clematis in this country.

Fifth, the only methods of management and successful culture of the best varieties of improved foreign Clematises appears to me to be especial planting in prepared muck or peat compost, and growing and training to supports under glass structure for the purpose.

Sixth, we most earnestly hope and expect that these precautions and protections will in course of time, be adopted amongst us, for it is most decidely our opinion that the great beauty and other superior qualities of the Clematis, as an ornamental climber, will give abundant satisfaction for the outlay and study given to it. We further hope and believe that instead of these results being made a discouragement in this line to any, that they will rather serve as stimulants to urge us to greater industry and greater care and deeper study of their requirements and wants, and in time we will secure varieties that will give us the satisfaction desired.

Arkona, Jan. 15, 1890. B. GOTT.

YOU love the Roses—so do I. I wish
The sky would rain down Roses, as the rain
From off the shaken bush. Why will it not?
Then all the valleys would be pink and white,
And soft to tread on. They would fall as light
As feathers, smelling sweet; and it would be
Like sleeping and yet waking all at once.

—*George Eliot.*

✳ Forestry ✳

MOVING TREES IN WINTER.

TEN days ago, I selected two young Red Pine trees, which I determined to transplant to my grounds. They are about twelve years old, standing sixteen feet high, and measuring nearly six inches through the trunk. The limbs growing low near the ground somewhat interfered with my operation. However, I had a trench dug about the trees eighteen inches deep, and as wide, leaving about five feet of earth about the trees; the snow was kept away so that the earth soon froze solid. But to-day with strong levers three men soon managed to pry up the ball containing the roots, and after breaking several chains in endeavoring to move it we found that there was more earth than was necessary frozen at the bottom of the roots, so that we reduced the thickness of the ball to eighteen inches. Then the trees were easily rolled out and on to a stone-boat by the aid of a strong team, and drawn to their new position. The earth was frozen as solid as rock, so there is no doubt but the trees will do well. The hired help will cost me nearly four dollars per tree. But imagine a fine Red Pine with its great dark green branches spreading over a space of ten or twelve feet, decorating a lawn for so trifling a sum.

Gravenhurst, Jan. 16, 1890. J. P. COCKBURN.

THE PLACES TO PLANT TREES.

THERE are a few words on this subject by a leading Washington authority I should like to lay before your readers: "Most of the methods recommended and described in American newspapers for planting forests, presuppose that the ground to be planted is arable, or at least, workable with the spade. This may be all right for the prairie States, yet there are probably on every farm in the mountainous regions more waste places than anywhere else, that will never pay to get the stones out, that will not grow any grass of value and that defy all cultivation. There are others which are too wet, and on account of their nature, drainage for agricultural use is impossible or unprofitable; others again, which, on their dry, shifting sand, will not bear any crop. These are the very places to which, in time, the forests in every well-settled country will be more or less confined, the better portions being needed for farming purposes; and, fortunately enough, not only can such places be made to bear

forests, but, being so used, they are improved, and often, after some time, gain in value, even for agricultural crops. To find out cheap methods for covering such places with a tree-growth is, therefore, a task not to be neglected. Trees should be planted on rocky hillsides, sandy barrens, along the brooks and watercourses, around the springs and by the roadside. It costs little to try the experiment, and in the results, restoring vegetation to sandy, waste places, affording shelter to cattle and preserving the present, if not restoring the lost water supply to the farm, in all this, not to speak of the increased attractiveness that the trees would lend, the planter will be amply rewarded.

R. W. PHIPPS,

Toronto. *Clerk of Forestry for Ontario.*

THE FIBRE OF THE FIRST YEAR'S SHOOTS OF SUMACH AS A MATERIAL FOR PAPER PULP.

ALLOW me to direct attention to the Staghorn Sumach (Rhus typhina), and the Smooth Sumach (R. Glabra), as pulp-producing shrubs for the manufacture of paper. The Sumach Tree or Shrub approaches to the Herbaceous tribes in the glandular construction of its rind and in its pith, and the fibre of its shoots is whiter and lighter than poplar. As it is readily propagated from shoots or sprouts, it may be cultivated with profit on rugged and rocky grounds. The first year's shoots should be cut for pulp-making before they begin to wither, when the leaves are full of sap, and especially before frost. They should be stripped of their leaves, which after being wilted in the sun are spread upon shelves or racks to dry in a shaded, but airy place for a month, and in damp weather longer, before going to market. Sumach sells, after grinding, at from $40 to $50 per ton. The rind should be scraped off clean from the shoots, immediately after stripping them of their leaves, and dried in a similar manner, and the shoots should be dried and stored away to be sold to the pulp miller. The leaves and the rind of the Sumach contain a tanning and dyeing material having the same properties as galls, its chief consumption being in cotton dyeing. The roots of both of these varieties of Sumach have hitherto been considered troublesome in sending up suckers, and the prevalence of common or smooth Sumach was evidence that the occupant was a poor and thriftless farmer. The velvety crimson berries of the smooth Sumach are also used in dyeing. They are astringent and of an agreeable acid taste, for which reason they are sometimes used as a substitute for lemon juice, for various purposes in domestic economy and medicine, and to turn cider into vinegar. The acid is the bi-malate of lime. Prof. Wm. B. Rogers, in Silliman's Journal, vol. 27, p. 295, recommends a process for obtaining it perfectly pure.—A. K. *in Toronto Globe.*



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

BONES AS A FERTILIZER.—The treatment of bones is the subject of an article in the *Farm and Fireside*, by "Joseph." He advises the careful saving of all bones accumulating about the farm, as they contain valuable fertilizing material, viz: three or four per cent. of nitrogen, and nearly one-quarter of their own dry weight in phosphoric acid. Their value, according to this scale, would be about one and a-half cents a pound. To get these old bones into available form, the following modes are advised, viz.: (1) burning, (2) mixing with fresh horse manure, the fermentation of which helps to soften them, (3) exposure to chemical action of unleached wood ashes, in which method they should be broken and put in alternate layers with the ashes in a barrel, keeping the whole mass moist until the bones are soft.

A NEW PRODUCE COMPANY.—We as fruit growers will gladly welcome any scheme for the better sale of our produce. An attempt was made last spring to form a joint stock company for this purpose, which failed, owing to the bitter opposition of influential English and Canadian commission merchants. A company has now been organized under the name of the Imperial Produce Company, having a head office in Toronto, and a British head office in London, England. Among the officials of the company we notice the names of Mr. Charles Drury, Minister of Agriculture; Mr. W. E. Wellington, one of our directors, and Mr. A. McD. Allan, our ex-President. The last named gentleman is to be the outside manager, and in his hands will be placed the personal supervision of the sale of our apples to retail merchants in Great Britain, Norway aud Sweden. We hope, therefore, to receive material aid from the operations of this company.

A WEEKLY MARKET BULLETIN.—We have in view a very important scheme for the benefit of the fruit-growers of Ontario. It consists of a weekly supplement to the CANADIAN HORTICULTURIST during the fruit season, giving reliable reports of both English and Canadian fruit markets during the months of July, August and September. This market bulletin will be sent free to all those members of our Association who desire it. Due notice of its first issue will be given in these columns, when those who wish to receive the bulletin will apply by postal card to the Secretary.

ON GIRDLING THE GRAPE.—Professor Maynard, of the Massachusetts Agricultural College, has been making further investiga-

ions with regard to the effect of girdling upon the quality of the fruit. On July the 5th of last year, one of the two bearing arms of sixty Concord grape vines were ringed one-half of an inch long near the trunk. As a result, these grapes showed color on August 12th, six days before those of the opposite half of the same vine. They were fit for market on the 20th of September, the berries being then from 30 to 40 per cent. larger and much sweeter than the others. On October 1st they were still sweeter than those not treated, but had a somewhat insipid taste, and lacked the refreshing sparkle of the others.

Dr. Guessman, chemist of the station, was of the opinion that the only explanation of this inferiority at the second period was in the loss of acid. The following is the conclusion drawn by Mr. Maynard: "That there is a decided gain in the time of ripening of the fruit which will enable us to grow many late varieties not possible without it; that a gain of ten days would make a great difference in the price of the fruit; that there is no loss of sugar, and the increased size of the berry would make it very attractive, and more than make up for its softness. This latter condition can be of little objection, as most of the grapes grown in New England are sold in local markets."

SMALL FRUITS TESTED.—In the same bulletin Mr. Maynard gives the result of two years' testing of a number of varieties of raspberries and blackberries, both old and new, by means of the following tables, which are arranged on a scale of 1 to 10, 1 indicating the greatest perfection:

	Productiveness.	Quality	Earliness.	Size.	Order of blooming	Per cent. of canes winter killed.	REMARKS.
RED RASPBERRIES.							
Rancocas	6	1		4	1	40	Very good.
Brandywine	5	3	3	5	6	23·3	Good.
Belle de Fontaine	7	6	7	2	8	13·2	
Highland Hardy	8	1	2	6	2	15·5	
Crimson Beauty	5	4	2	5	1	28·2	
Cuthbert	1	5	9	2	9		Standard market berry.
Hansel	1	2	2	5	1	35·5	Profitable.
Marlboro	2	5	2	2	2	52·1	Firm, profitable, requires high culture
Golden Queen	5	7	9	2	9	27·7	Soft.
Caroline	4	3	3	6	4	12	Too soft for market.
Turner	5	6	2	7	2	13	Small and crumbles.
BLACK-CAP RASPBERRIES.							
Nemaha	4	7	9	5	8	78	Vigorous.
Crawford	2	3	3	4	2	0	Promising, vigorous.
Hilborn	1	2	8	3	2	0	Not sufficiently tested.
Thompson's Sweet	6	7	4	5	6	0	" " "
Ohio	3	7	3	2	7	16·6	Vigorous.
Gregg	1	3	10	1	10	39·3	Tender.
BLACKBERRIES.							
Erie	5	6	5	2	8	16·5	Continued fruiting till Aug. 28.
Early King	6	3	3	4	4	0	
Wilson, Jr	2	8	8	2	2	25·8	
Wilson's Early	3	7	2	2	2	48	
Early Harvest	1	5	1	5	3	62·3	
" Cluster	3	6	1	4	1	21.8	
Agawam	5	1	2	3	2	5	Sweet and moderately firm.
Taylor's Prolific	1	3	9	3	10	10	
Wachusett	4	4	5	5	5	8	
Snyder	3	3	5	4	6	9	
Minniwaski	5	7	4	5	3	20	
Excelsior	8	6	5	8	6	50	
Lucretia	3	8	2	2	2	14·5	Productive good.

ERRATA.—On page 33, and on frontispiece opposite, where it reads "Prof. Wm. Saunders, Director of the Experimental Farms of Ontario," read instead of the last two words, "of the Dominion of Canada."

Also for F.R.C.S. read F.R.S.C., meaning Fellow of the Royal Society of Canada.

Also on page 37 for *Ohio Farmer*, read *Orange Judd Farmer*.

SPRAYING,—At the recent meeting of the Ohio State Horticultural Society, Prof. Weed stated that he had fully demonstrated the possibility of destroying the "Little Turk" with London purple in a solution of one ounce to ten gallons of water. He also found that by adding Bordeaux mixture to the solution he could prevent the plum rot. The only difficulty was that the mixture adhered to the fruit, making it necessary to wash it with a weak solution of vinegar and water.

RUSSIAN APRICOT.—We are constantty receiving enquiries regarding this fruit. Two dozen trees planted on Maplehurst Fruit Farm have not yet borne a single specimen, though three years planted. It was stated at the Ohio meeting, above mentioned, that this apricot was as subject to damage from frost when in bloom as the European varieties, and therefore not likely to be of any more value. We hope to be able to report definitely concerning the value of this fruit after the coming fruit season.

NUTS FOR PROFIT.—At the Trenton meeting of the New Jersey Horticultural Society, Mr. Parry advocated nut culture for profit. A new walnut, named as "Præparturius," was recommended as wonderfully productive. Of chestnuts, he grows several varieties of the Japan strain, which he highly commends; as, for instance, the "Reliable" and the "Giant," which are of an enormous size, and have sold as high as 40 cents a quart. The "Paragon" and the "Miller" are probably American varieties, and these are very promising. He claims that at the present prices of these large nuts, an acre of having them, twenty-seven trees, will bring $200, without any expense other than the harvesting, which he claims can be done for about half a cent per quart.

THE FARMERS' PARLIAMENT.

THE Central Farmers' Institute at Toronto was fully attended by representative farmers from all parts of Ontario. Mr. Aurey, M.P.P., the president, gave an interesting address in which he paid a tribute to the Dominion Government for the generous response given to Farmers' Institutes, in sending out without any expense to the latter, the professors of the Experimental Farm, to give addresses on their special departments. The same spirit had been manifested by the Ontario Government, in sending out the professors of the O.A.C. and specialists in various branches of industry to speak at the January meetings.

He alluded to the subject of annexation as one in which the farmers of Ontario had no sympathy, though they might be desirous of closer commercial relations.

Prof. Shaw, of the O.A.C., in his address on the need of an universal herd law for the Province, showed the inconsistency of the legislation which professedly encouraged road side tree-planting, and at the same time permitted live stock to run on the road. He advocated planting trees freely along our roads, and that a law should be passed of universal application, preventing cattle from running. No fences along the road would then be needed and the beauty of the landscape would be wonderfully increased.

Mr. E. Morden, of Niagara Falls South, read an important paper on market fees. He showed that it was unfair that the market gardener should be compelled to pay tax first upon his land, and then a second time upon his produce of the market. The towns and cities receive sufficient benefit from the visits of the farmers and gardeners to the town without charging them for the few feet of space which each man occupies in the sale of his produce. The town is receiving as much benefit from the market in buying their food supplies as the farmers in their sale of their produce.

All these and other important questions were referred to the committee on legislation.

Question Drawer

GOOSEBERRIES DROPPING.

8. SIR,—Can you tell me the cause of gooseberries dropping off the bushes just as they attain full size? My bushes bore well last season, but I did not save more than one-quarter of the fruit.—ELIZ TRIGGE, *Eleven Oaks, Cookshire, P.Q.*

PEARS ON APPLE STOCK.

9. WILL pears do well grafted on apple stocks, either on young seedlings, or on bearing trees?—G. J. R., *Penetang.*

Pear scions grafted on apple wood will live for some years, and bear fruit, but will not do nearly as well as on pear stocks.

THOSE RUSSIAN TREES.

10. SIR,—Are the trees from Russia to be distributed among the members of the Ontario Fruit Growers's Association? If so, I would like a share.—H. E., *Napanee.*

These trees and scions are being reported wholly in the interest of our members, and so soon as we have propagated them in sufficient quantity, they will be distributed among them.

CANADA ORLEANS.

11. SIR,—Will you please give the origin of the plum known as "Canada Orleans?" It appears to be a seedling, as it is grown from sprouts or suckers; it has been grown in this neighborhood for about thirty years.—C. C. B., *Tapleytown.*

This must be a local variety and not known, except in a few localities. Would our correspondent please send some samples to this office in fruit season.

BEST WORK ON THE ORCHARD AND GARDEN.

12. SIR,—I am about starting in the orcharding and small fruit business; would you advise me concerning the best work on that subject?—D. M., *Bay View, Pictou Co., N.S.*

The best practical work on this particular line of horticulture is "The American Fruit Culturist," by J. J. Thomas, and can be had through this office.

CARE OF SHRUBS AND TREES ON THE LAWN.

13. SIR,—Is it advisable to keep a place dug up about shrubs and trees on a lawn, and if so, how large?—R. McI., *Newcastle, Ont.*

Yes, it is advisable, both because an even cut looks more tidy, and because, while trees are young, they especially need digging about and enriching. The size of the space should be proportionate to the size of the trees, and the distance the roots extend. Of course, large lawn trees, well established, will take care of themselves.

KIEFFER PEAR.

14. SIR,—What do you think of the Kieffer pear? Would you recommend it as a profitable pear to plant? I have grown it for a number of years and do not care for it.—G. H. NIXON, *Hyde Park, Ont.*

We are by no means favorably impressed with the Kieffer; its quality condemns it. Like the Ben Davis apple, its beauty and its productiveness may make it profitable to grow for market until it becomes well known in the markets, when it will, no doubt, decline in value. It is fairly good for cooking and for canning purposes.

THE DICTIONARY OF GARDENING.

15. SIR,—Would you kindly inform me if the "Dictionary of Gardening," by George Nicholson, is a really good standard work. Is it worth the money, and where can I get it?—A. J. C., *Listowel.*

This is the best work in the world at the present time on gardening, although written for the English climate, and consequently not adapted to Canada with regard to seasons and dates of planting; it is in every other respect a complete, practical and scientific encyclopædia of horticulture for gardeners and botanists. It is published in eight volumes, beautifully bound, and profusely illustrated. You may order it through this office or from Mr. J. Arnot Penman, 41 Dey Street, New York City, who is the sole agent for America.

CHERRIES AND WINTER PEARS FOR HOME USE.

16. SIR,—Would you please give me the names of two winter pears which you would recommend for home use, and the four best varieties of cherries for home use or market. —C.C.B., *Tapleytown, Ont.*

Of the Heart cherries, we would recommend the following four as most excellent. (White) George Wood and Elton; (black) Knight s Early Black and Black Tartarian.

Of winter pears, none can surpass, for home use, the Lawrence, and the Beurre d'Anjou.

THE RICHARDIA ALBO-MACULATA (SPOTTED CALLA.)

17. SIR,—Please give us some information about the cultivation of the Spotted Calla, offered in the list, as we shall not get it until the season of growth ought to be nearly over, and, if kept growing all summer, I am afraid it will not flower next winter.—A. J. C., *Listowel.*

The variegated Calla, unlike the ordinary Calla (Richardia Æthiopica), is a summer bloomer and rests in the winter season. The chief requisites for success are plenty of water in the growing season, and good rich soil which may be made of a compost of good oam and cow manure in equal parts.

BUYING NEW VARIETIES FOR THE ORCHARD.

18. I WAS thinking of planting out an orchard this spring, and as you are the Secretary of the Ontario Fruit Growers' Association, I take the liberty to ask you to name the best kinds to plant for the English market. The Brown Bros., of Rochester, recommend Grimes' Golden, Longfield, Belle de Boskoop, Wealthy Salome, Duchess and Mann, as they are iron-clads. Are they better than our common kinds to grow for the English market.—A. J. KELLEY, Talbotville.

We would advise you to "go slow" with those new varieties. The Duchess is one of the finest summer apples you can plant, and the Wealthy one of the finest early winter apples, but neither are well adapted for distant shipments. If they can be carried in good condition they will sell well. Grimes' Golden is a good apple, and so is Mann; the latter is very productive, but it drops rather easily and its dull green color is against it. Much is expected of the others, but probably not a single barrel of Longfield, Belle de Boskoop or Salome, has yet been sold in the English market. We would advise you to try them; but we would advise you to plant principally of those varieties which have been tested, and which our market reports show bring the best prices in England. You, in West Elgin, surely, need not be restricted to iron-clads, as you are in the region of the Baldwin, Spy and King.

WORMS IN EARTH ABOUT CALLA LILIES.

19. I SEND you sample of some small worms which are very abundant in the earth about the roots of my Calla lilies. Can you tell me how to get rid of them?

Reply by Prof. James Fletcher, Experimental Farm. Ottawa.

The box containing larvæ, which you had found in pots where Calla lilies were being grown, arrived all right and contained one dead dipterous larvæ, probably a *Sciara*, and two young earth worms, *Lumbricus*; these are both alive. They can be told from the *Sciara* under the microscope by their setæ when fresh from the eggs, they are quite white and resemble the *Sciara*, larvæ somewhat. I should suggest your trying watering your plants with some soot and water (soot from soft coal), this can do no harm to the plants and kills most insects. I have been trying experiments with carbolic acid, but find them unsatisfactory.

THE SASKATOON BERRY.

20. A DELEGATE to the meeting of the Minnesota State Horticultural Society from Manitoba, in speaking of the native fruits of that region, mentioned one known there as the Saskatoon berry I think he said it was an early summer fruit produced upon a shrub. Can you inform me what it is? Its botanical name? Is it some fruit limited to that region, or is it a variety of what is known here as the Juneberry?—J. S. H., *La Crescent, Minn.*

The Saskatoon berry referred to, is a dwarf Juneberry, known botanically as "*Amelanchier oblongifolia.*" It is one of the best varieties known for culture for fruit, as well as for ornament. For this latter purpose it was highly recommended by Prof. Fletcher,

at one of our recent winter meetings, who described it as a most ornamental shrub for the lawn; and Mr. VanDeman, the chief of the section of Pomology, the Department of Agriculture of the United States, says it is well worthy of a place in the family fruit garden. Externally it resembles the huckleberry, changing as it ripens from a reddish purple to a dark purple. In size it varies from one-quarter to one-half an inch in diameter, and its flavor is a mild sub-acid, which is counted by many people as delicious, especially when the fruit is eaten with sugar and cream. It is said to be very good in pies mixed with green gooseberries, the sugar of the one counter-acting the acid of the other. The plants are propagated by suckers which are usually set two or three feet apart in rows, and the rows eight feet apart. The Juneberry belongs to the Rose family, and there are several varieties varying in habit of growth, from bushes to trees of thirty or forty feet in height. Dr. Geo. Thurber, speaking before the American Pomological Society, refers to it in the following terms: "The fruit is borne in clusters like the currant, and ripens in June. I had two or three bunches that fruited several years in succession. In spring they are a sheet of white, and very ornamental. The fruit, which is borne in great abundance, is, to my taste, better than huckleberries. This species varies widely in its wild state. I have found the tall kind in fruit in Maine, but one of those little bushes will bear as much as half a dozen of the big ones."

PROPAGATION OF BLACK CAP RASPBERRIES.

21. PLEASE describe how to propagate black raspberries by tips.—G. J. R.



FIG. 29.

The propagation of the Black Caps is very simple, and any one who buys a few plants may easily increase his stock to any extent. Soon after fruiting season the ground should be cultivated and made fine, and the tips of the canes should be layered two or three inches deep in a nearly perpendicular position, as shown in Fig. No. 29. This can be done very rapidly, and the rows should be gone over two or three times in the season, as the younger canes or branches reach the ground. Mr. Chas. Green says that it is possible in good rich soil to get 100 plants from one, the first season planted, and that a good man will put down from 1,000 to 4,000 tips per day. This is a high count, but it shows how little the nurserymen regard the difficulty of propagating Black Caps.

The following spring a shoot will start from the layer very early, and the young plant being furnished with an abundant supply of fibrous roots, may be easily transplanted. The important point is to keep it from exposure to the sun and wind, which would quickly destroy the life of the tender rootlets.

Open Letters

VALUE OF THE JOURNAL.

SIR,—Your paper is of great value to the Horticulturist on account of its fine cuts of new fruits and flowers and the very practical character of its contents.

The Vergennes Grape I received last year grew rapidly till the summer frost cut it down, but it made a fine growth afterward. All the other plants I have received did well, except the Boussock Pear, which died.

J. J. BROWN, *Stouffville, Ont.*

THE MINNESOTA STATE HORTICULTURAL SOCIETY.

THE late meeting of the Minnesota State Horticultural Society, held at Excelsior, January 21st and 24th, was very well attended, and I think will rank as the best and most profitable meeting yet held by the Society. Wyman Elliot, of Minneapolis, was re-elected President, and Prof. Samuel B Green, Horticulturist of the State Experiment Station, St. Anthony Park, was elected Secretary.

Very truly yours,

J. S. HARRIS. *La Crescent, Minn.*

THE ONTARIO FRUIT LIST.

FROM the following letter addressed to Mr. Thos. Beall, which is only one of several of a similar nature, it is evident that the work of our Association in preparing on Catalogue of Ontario fruits with values, and in making up special lists for various sections, will be appreciated by the public :

SIR,—It affords me much pleasure to see an effort being made to reduce the large number of useless apples now grown in our country. I believe the foreign market value will help to show us the kinds to grow for export. Our section will grow any of the kinds mentioned on your list, but of some the trees are poor growers, and of others the fruit falls too early. The Ben Davis is a heavy bearer, but dwindles with age, and is very coarse.—THOS. BURDEN, *Bowmanville, Ont.*

PLANTING IN SIMCOE COUNTY.

SIR:—I planted an orchard on a northern exposure, of seventy-nine apple trees, twenty-nine varieties, last spring; also three kinds of plum and two of pear, and a lot of small stuff on a sandy ridge between Matchedash Bay and Sturgeon Bay, about a mile from the Bay and 150 or 200 feet above it. If I succeed I intend to plant ten acres or more. I made a map of orchard. I thus know what I put in if true to name, and where it came from. I have some idea of how they grow fruit about Oakville and vicinity. I may correspond with you in the near future if you don't object.

I do not believe in so many varieties, but want to find out kinds that will succed here. Planted a number of favorite kinds which I do not expect to stand the climate. There is a ridge above me on the west. I intend to leave or plant a belt of timber on the north and west. I bought a new place, our old pine slash, with a great wild berry patch, and I am clearing it up and planting on the new soil. When I get over the squeeze of clearing and building, I hope to be able to buy books and make a study and a success of fruit-growing. Yours sincerely, R. C. STEWART, *Fesserton, Ont.*

PLANTS TESTED IN GREY CO.—THE ONTARIO FRUIT LIST, ETC.

THE Russian apple tree (sent out, I think in 1885, and of which I have lost the name), was killed the second winter down nearly to the ground and has not grown much since, but I have a couple of grafts growing on other trees, also a couple of small trees grafted from it, so that I have a chance to get fruit from it some day.

The Lucretia Dewberry grows plenty of vine, but very little fruit as yet. The Vladimir Cherry is doing fairly well, but I don't know whether to train it in tree or bush form.

I think the classifying of the different varieties of fruit, as described in the January number of the HORTICULTURIST is a good plan, as is also that of prominent fruit growers attending and speaking at farmer's institutes, in the interest of fruit growing.

I attended the meeting of the South Grey Farmer's Institute, held on the 4th of January, in Victoria Hall, Dundalk. The speakers were James Mills, President of Ontario Agricultural College, J. McMillan M.P., and T. A. Race, also R. Cornell, a local cheese maker and dealer. Mr. Race spoke on the pruning of fruit trees, and also about the proper time to buy them. He said it was no advantage to do as some nursery men recommend and buy trees in the fall, bury them through winter and plant them in the spring; as it is like putting a person in a warm bath and then exposing him to the cold wind. He also spoke on the growing of strawberries and other small fruits.—ROBERT SCOTT, *Hopeville, P.O., Grey Co., Ont.*



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HUBBARDSTON'S NONSUCH.

THOUGH by no means a new variety of apple, the Hubbardston is as yet much less known and cultivated in our orchards than its merits would warrant. It is one of our very best early winter varieties, being in season from October to January; thus coming in competition with the Ribston and the King, but excelling the latter in beauty of color, and the former in evenness of size and productiveness.

As a commercial apple for Ontario, the Hubbardston should rank high in those sections in which it has been found to succeed, but so few reports concerning it have been sent in, and so little has been said about it at our meetings, that we conclude it has been tried in very few places. Some samples were sent us from Beamsville, in Lincoln County, about a year ago, which were fine and beautifully colored, and the grower reported that he considered them to be his most valuable market apples. In our report for the year 1885, page 28, we find Mr. Wright, of Renfrew, speaking very highly of this apple for his retail trade among consumers in his county. He says: "We sell ten barrels of Hubbardston's Nonsuch to one of any other variety. For retailing the Nonsuch takes the lead."

Since Mr. Wright buys his supply of these apples from Prince Edward County, we infer that this variety thrives well in that region.

The Hubbardston originated in a town of Hubbardston, in Massachusetts, from whence, of course, it takes its name.

The tree is a fine vigorous grower, forms a handsome well branched head, and is quite productive.

The fruit is thus described by Mr. Downing, in his "Fruits and Fruit Trees of America."—Fruit large, roundish, oblong, much narrower toward the eye. Skin smooth, striped with splashes, and irregular broken stripes of pale and bright red, which nearly cover a yellowish ground. The calyx open and the stalk short, in a russeted hollow. Flesh yellow, juicy and tender, with an agreeable mingling of sweetness and acidity in its flavor. Very good to best. October to January.

NOTES FROM THE WESTERN NEW YORK HORTICULTURAL SOCIETY.—II.

BY A SPECIAL REPORTER.

THE paper by C. E. Hunn was interesting and instructive, giving a *résumé* of the work done by the New York State Farm in connection with the Strawberry, and giving an idea as to the arrangement of the test grounds, so that clay loam and gravelly soils will be in conjunction, and so be able to give the public a better knowledge of what varieties to plant on a special soil.

In planting for the purpose of comparative testing, they plant two rows, each row containing twelve plants, the rows being three feet apart; one is grown in the stool system, the other being allowed to mat to the width of two feet. Hr. Hunn says: "It is often said that the strawberry sells more by its appearance than from its quality, but I find a growing demand for berries of fine flavor, and buyers are asking what are your best flavored varieties, not, which one yields the most. This leads me to think that the public are slowly discovering that there are strawberries and strawberries.

"I should recommend the following as a good choice for market and kitchen garden:

"Market sorts include Hoffman, Haverland for early; Daisy, Burt, season medium; Bubach and Crawford, for late.

"Garden sorts include Bomba and Haverland, for early; Ivanhoe as medium; Farnsworth and Middlefield, as late."

Concerning the matter of growing seedling strawberries, Mr. Hunn presented some very interesting facts. "There were also fruited on the station grounds upward of 1,000 seedlings, a number being crosses, and out of the whole number only twenty were saved because of showing any indication of being better than the parent plants, but in the study of them I found many interesting facts as regards the variation in pollen bearing blossoms.

"One would naturally suppose that a variety as vigorous, and well supplied with pollen, as the Sharpless, would be more potent to carry it, than one having the habit or Lenning White, but the contrary has been the result in this instance, and the contrast seems too sharp to be merely accidental. If this potency continues to hold good through other tests, it will be of great benefit and an aid in perfecting a very late pistillate variety of vigorous growth and fine flavor. As in the case of a variety called Johnston's Late, a very vigorous free flowering variety, with delicious flavor, but blooming too late to receive pollen from other varieties, and if we can be sure of a supply of pollen from a variety of weaker growth but potent to carry its pollen, it will be one step toward accomplishing our ends.

The following suggestions were offered by P. B. Crandall, of Tompkins County, as to the organization of fruit growers: "Cannot fruit men benefit themselves as a class by copying somewhat from other industries? Fruit Growers' Institutes would be as beneficial to their interests, as Dairy Institutes have been to the dairymen. Experienced and successful fruit-growers and nurserymen in charge of such institutes could do much to secure health and productiveness in the orchard. A series of meetings in such localities as were favorable for fruit growing, would awaken an interest among farmers to a subject that heretofore received but little attention.

"If spraying trees prevented the ravages of destructive insects, a united effort would approximate towards a final destruction of such insects, so as to at least prevent much harm. To pick fruit from overloaded trees while growing, so as not to over tax vigor, would not only diminish the number of bushels grown, but would double the value of each bushel harvested. Such meetings would awaken an interest in both large and small fruits, so that needed attention in care and cultivation would be given, and the result would be a great improvement in size and quality. In packing for market these two features should be the distinguishing marks, size being indicated by the number of apples or pears in a package; color, because showing degree of quality, and maturity should also be regarded, especially with any brand marked "extra," as a brand that would guarantee proper size, flavor and freedom from imperfection, would secure a market at the sellers own price, in almost unlimited quantities.

The greatest profit will be on the "extra" grade and to this grade, institutes would bring a large percentage of the best varieties of fruit. Lower grades will have a market value, probably as high as the usual general value, at present, for all the fruit.

The value of a brand is illustrated by the sale in the Philadelphia market, of the Niagara Grape; those bearing the brand of the Niagara Grape Co., in the same size baskets sold for twice the price of the same grape, without the brand. Purchasers knew that the brand meant that at

the bottom as well as the top of the basket every bunch was well ripened, and an ornament on any fruit plate or stand. Such would be the case with apples and pears, as soon as a brand was a guarantee of uniform excellence. If mature, well-ripened, palatable, wholesome fruit only was offered in our home as well as distance markets, it would so increase consumption that fruit growers could use their best efforts for years to supply the demand.

During the closing session, the following information as to the newest grapes was brought out from various members. Lady Washington is too late for this section as is also the Downing. While the Eldorado is not worthy of culture, the same seeming to be true of the Woodruff and Jefferson. The Prentiss was delicate and not suited for Vineyard purposes. The Pocklington had done well, as had the Mills. The Niagara was generally recommended, while the Empire State was not profitable. The Hayes was a dry bearer and weak grower. The Early Victor was well spoken of. The Diamond was satisfactory. Other varieties well recommended were Ulster, Vergennes, Wyoming and Green Mountain.

As to hardy peaches, *i. e.* such as were more exempt from injury by frost than others, it was stated that Early Rivers, Hills Chili, Rareripe and Hine's Surprise were nearly always sure to produce a crop of fruit.

THE DOMINION CONVENTION OF FRUIT-GROWERS.—II.

A CONFERENCE WITH CARRYING COMPANIES—COMPLAINTS MADE AND GOOD RESULTS EXPECTED.

THE attendance on the evening of the 19th was very large, consisting of fruit-growers, dairymen and representatives of the steamboat, railway and Express companies.

The subject of transportation was ably introduced by Mr. A. McD. Allan. He began by allowing that growers did not always pack their fruit properly, and that they often delayed gathering and packing for shipment until the fruit was altogether too ripe, and consequently would not carry well. A packer needs to be a scientific man, and know something about the varieties he is handling, and treat them accordingly. He referred to the great importance of a good clean neat package to ship in, because this was very helpful in the sale of the contents.

Next in importance, after the fruit was put up in proper shape for shipment, was prompt despatch on the part of the railway companies, both in the supply of cars and in speed of transit. Frequently shippers had to wait a very long time for cars, and then, when once the fruit was on the way, the most serious delays occurred on the road, all of which combined to ruin perishable goods and discourage shipments. Surely the companies could

provide a remedy for these ills, by a larger supply of cars and less delay in the case of trains carrying perishable goods. It would be a great advantage, for instance, if regular trains could be arranged to connect with steamships, and thus make the most direct connection between the shipper and the foreign markets.

A very serious damage also resulted from the shunting of cars—sometimes barrels were even broken open by careless shunting ; but if not broken open, the fruit was often very badly bruised. This could be remedied by the use of buffers on the freight cars, as is done in England.

Great damage also resulted in the careless transfer of fruit from the cars to the steamships, and this could surely be avoided.

Accommodation on the steamships was a most important point. It is almost impossible to get our fruit to a foreign market in anything like the condition in which it is shipped. We want cool fresh air in the apartment in which it is kept. Too often the atmosphere about the fruit on shipboard is heated, and so tends to its rapid ripening and resultant decay. The apartment itself, too, should be fresh and clean, for fruit very quickly takes on a bad odor. On vessels which make a business of carrying cattle, it is almost impossible to separate the cattle and the fruit as to prevent damage to the latter. If we could have such accommodation as we require, we might encourage our growers to enlarge their orchards, and we would find that our summer and fall fruits were even more profitable than our winter fruits.

Bills of lading of carrying companies are of the most one-sided character imaginable. They must have been invented in the time of Noah. The poor shipper is at the disadvantage and has no remedy. A bill of lading, to be fair, should, for example, give us a guaranteed count. The railway company will give a count for ten barrels, why not give a count for a carload? Invariably we find a shortage where there is no count given except the shipper's, and in this way we have heavy losses.

The sealing of railway cars is defective. The little button can be easily broken, and a barrel of apples stolen during delays.

Lastly, the rates should be lowered. The rates on a barrel of flour are lower than on a barrel of apples. This should not be, for apples are a cleaner freight to handle than flour. This is an unfair discrimination against the fruit-grower.

Now, we want the carrying companies to meet us in regard to our difficulties under these and other heads, and, by their co-operation, help us to extend our trade, and thus benefit all parties concerned.

Mr. Watt, representing the Allan line of steamships, said there was one thing in which this convention resembled every other, and that was that each thought his own commodity the most important one in the world. In carrying fruit there are special difficulties. The goods are so very perish-

able. The business of carrying it is so shortlived ; you send forward nothing until autumn, and then expect us to put aside everything else for your fruit. Now we have to arrange our space to suit all classes of traffic. With regard to a guaranteed count, the steamship companies always give this, although the railway companies do not.

Mr. Thom, of the Beaver line, said that it had been stated that fruit was handled better by New York lines than by Montreal, but this was not the case. He had been at both ports on duty, and was in a position to prove what he said. In one point shippers were often neglectful, *viz.:* In sending carloads of fruit without notifying the steamship companies either of date of shipment or of the number of the car. This should always be done, either by letter or by telegram.

Representatives of the Thomson line, the Dominion line, the C.P.R. Co. and the Express companies were also heard from, and all seemed to desire to do their best to accommodate shippers. We hope, therefore, that, as a result of this conference, some practical result may accrue which shall encourage the more extended export of Canadian fruits.

LETTERS FROM RUSSIA.—III.

BY JAROSLAV NIEMEȚZ.

RUSSIAN AND ANSJUTIN'S APRICOTS.

THE Mennonites were German colonists of Russia who emigrated to America because they did not believe in military service ; they inhabited the southern Governments of Russia, *viz.:* Karsonskaja with the chief town Odessa, Ekaterinoslavskaja and Crimea, which last was the central colony. In all these governments, grapes, peaches and apricots grow wild, and on the south coast of Crimea even the almonds and figs will succeed. Although sometimes there is a heavy frost in the governments of Karsonskaja and Ekaterinoslavskaja, and the grape requires protection in winter time, yet these countries may be considered well adapted for the cultivation of grapes.

In the above-named governments the apricot grows in vineyards, gardens and fields, into a large tree, and yields abundantly. The fruit is sold in the gardens for twenty or thirty cents per poud (one poud equals 36 kilogrammes*). The fruit is used chiefly for eating fresh, and to some extent for preserving ; no other use is made of it, because we Russians are not so ingenious in preparing fruit dishes as you are in America.

There are many varieties in southern Russia, of which the following are the chief, (1) "Holland red cheek" (probably raised from pits of the Breda),

*1 Kilogramme=2.20 pounds.

a good large table kind, and (2) "Odessa," pale yellow, excellent, sweet and firm; a suitable apricot for preserving.

It is to be inferred that it was chiefly these two kinds of apricots which the Mennonites brought with them into America, as they were generally cultivated in the places from which they emigrated; and, therefore, that all American varieties of the Russian apricot have been raised from pits of the Holland and Odessa. The method of propagating them by pits is very popular in this country. The fruit of such trees is variable, but the trees themselves are more hardy than those propagated by grafting; they are also more productive and long-lived, and the acclimation of them to the conditions of any country is easier. The success of the Russian apricots in North America can be explained in this way, though brought by the Mennonites from southern Russia, they are grown from pits. The difficulty of the acclimation of the apricot, the peach and the tender varieties of plums to cold climates, may be overcome both in north of Russia and in America by propagating by the seed and not by grafts.

No doubt it will at first produce fruit of poorer quality, but many among them will prove worthy of selecting for dissemination.

As I observed above, a seedling that has not been transplanted and whose tap root is entire, is the more hardy because it strikes deep below the reach of frost. The most northern point in Russia where the apricot succeeds, thanks to the labors of our experienced and eminent pomologist, Mr. F. Ansjutin, we must count Niegin, in Chernigovskajagov. His apricot originates in Crimea, and was raised from two pits brought away about the year 1840 by Mr. F. Ansjutin, who was at that time a young man. At first he tried propagating several foreign kinds by grafting. After these had all perished in the first cold winter, he noticed two seedling trees which were wholly uninjured by the cold, and after these had fruited he was so pleased with them that he raised a large plantation. I saw in his garden apricot trees like apple trees in growth, twenty-five years old; they require no protection in winter; also a plantation of seedlings which had been raised in quite an open exposure.

Frost is sometimes about twenty-eight degrees (Reau.) at Niegin; the trees do not die even at that temperature, but it destroys the flower buds and consequently the fruit crop. Mr. F. Ansjutin raised, from two stocks, some varieties of which the four following are worthy of attention:—(1) Apricot, large white, early (like Nicholas); (2) Apricot, small white, late, sweeter than preceding; (3) Apricot, yellow, large early; (4) Apricot, yellow, small late. I sent you some scions and pits of these, the most hardy of all kinds. Next year Mr. Ansjutin promises to give me more of them for your respectable Society. Many American nurserymen's catalogues call these seedlings of the Mennonites "the Siberian Apricot," and some gardeners in their fancy actually suppose it originates in the Blue mountains of

eastern Siberia. These gardeners are in fault for inducing buyers to purchase by such ridiculous mis-statements. We should be very glad if not only the apricot, but the orange also would grow in Siberia ; but to our sorrow it is doubtful whether any fruit trees will grow there except Siberian crabs and small inedible wild pears.

I find that the name " Russian " Apricot is not proper, because it would lead one to suppose that it will grow at Moscow or at St. Petersburg, which is not the case. A better name would be the Crimean Apricot, from the place where it originates.

BOHEMIAN QUEEN CHERRY.

The cherry pits which I sent you are taken from the fruit of the celebrated " Bohemian Queen," which I propagate on account of its excellent qualities and its hardiness. As a market variety it is unequalled. It is an abundant cropper and the fruit is of excellent flavor, larger and more fleshy than that of the Ostheim, which some years is dry and therefore poor.

It is more delicious than " Frauendorfer," or " Double Natt," and even the " Large Spanish " can only be compared with the Bohemian Queen in point of size, and not in productiveness or flavor.

In quality there are only two new kinds that can be compared with it, *viz.*: (1) Cerise D'Olivet, large, sweet and delicious, and (2) the well-known Empress Eugenie. The introduction of this cherry is the most important matter, because it can be propagated, like the Ostheim, from seeds or root suckers. Sixty per cent. of the seedlings are constant. It succeeds well in places where the ground remains moist until the month of May.

Fruits

WHAT I KNOW ABOUT FRUIT FARMING.



FOUR years ago last November I bought a fruit and truck farm between St. Thomas and Lake Erie. The farm consisted of twenty-five acres beautifully situated, the buildings good, and several acres were planted out to small fruit. I may as well say, right here, that I never farmed or gardened a day in my life, previously. I had been a newspaper man, and the hand work and constant worry had destroyed my health, and my physician ordered me forthwith to get as far out of town as possible and use a hoe as much as my strength would permit. It will be concluded from these circumstances that I have not got wealthy in the fruit business. This is correct. But a good many things have come under my observation, and being a man, who, in the parlance of the Press, has "a nose for news," there has not much connected with the business escaped my notice. There was a strawberry plantation of about two and a half acres on the farm. The crop, the next summer, was magnificent. The crop everywhere was the best within the memory of the oldest inhabitant. I sold a few early in the season at a fair price, but soon it went down, down until two and a half cents a box was reached with no sale. Coming home from St. Thomas one day with a load which I could not sell or give away, I gave my hired man orders to hitch up the team and plow the strawberry patch under, as I did not know of any other way to get rid of the berries. He did so, and the next year I bought berries for the use of my family and had to pay ten cents a quart for them. The two following years I set out small plantations, but the grubs or the frost destroyed them to such a degree that I had but few to market, but this coming summer I will have a fine plantation again, and the probabilites are that every body else will who is in the business. The "flush" year a man living about two miles from my place had a plantation of ten acres, which he sold at a small profit. He had opened up a connection all over the northwestern portion of the Province, and he knew where to ship his berries so as to get the best price for them. Then, besides, he was a "hustler." It is the "hustler" who succeeds in every business, especially in the fruit business. The two following years he cleared $1,500 each year from his strawberries, while I had none to sell.

I have come to the conclusion that a man to be successful in fruit culture, must be first, a hustler; second, he must know how to sell a crop;

third, how to raise one, and lastly, when he possesses the three above qualifications he must raise a crop every year. A man not adapted to the business can make a better living running a peanut stand on the street of some city or selling patent medicine on the back concessions.

Though I have not made money at the business it has not been profitless. Four years of gaining health, four years of "communing with nature in her visible forms" must be counted when the balance is struck. I have found new companions in my fruits and flowers which speak in "various language" and unfold some of the mysteries of the Universe.

On some future occasion, with your permission, Mr. Editor, I will address a few lines to fruit growers (outside the Niagara District, and Mr. Pettit's jurisdiction) on the marketing of fruit.

St. Thomas. FRANK HUNT

APPLES FOR EXPORT.*

CONSIGNEES—QUALITY TO SHIP—THE PACKAGE—UNIFORMITY OF CONTENTS.

IN RESPONSE to your invitation, we beg to contribute the following remarks on the subject of Apples for Export.

In what follows we address growers only, believing that there need be no medium between them and the distributor to the *retail* trade.

We would urge on growers to select one or more reliable firms (according to the quantity of fruit exported) who are in touch with the retailers, and to send regularly to said firm or firms all the season through. The advantages are, that such consignments are not left to the mercy of the auctioneer, (sometimes competing *auctioneers*), the market gluts are largely avoided, and where growers pack practically the same each consignment, the brand becomes known within circles where—always supposing the fruit merits it—a demand for it more or less steady is created, and a good standing price secured.

The grower is also brought into immediate contact with the *distributer* of his goods, and is, therefore, sure to be advised of any defect therein, when a remedy can be applied and the defect guarded against in future. We think there are three headings under which we may arrange the few remarks we have to offer, *viz :* QUALITY, PACKING AND VARIETIES. And here permit us to remark that pressure on our time forbids any elaborate production and necessitates our confining ourselves to a few practical suggestions.

QUALITY. Whatever may be his wishes, the grower knows right well that he cannot grow fruit to order. Even with his best efforts to produce

* Paper from Wood, Ormerod & Co , Edinburgh, Scotland, read at Dominion Convention.

fine fruit, he finds that each season brings him a proportion which does not fall under that heading. This brings in the question, What shall I ship, and where?

The market prospects at home and abroad, as far as he can ascertain them, are before him and many considerations must influence his decision.

In shipping to Britain, however, the consideration of freight and charges, competition, and the small attention paid to second rate goods, should lead growers to be wary of shipping hither that class of apples. From all our experience during the last eighteen years, we can with confidence say, "If you wish to secure good results, ship only good reliable fruit, and where *choice* can be added, so much the better." Under this heading we may include condition, that is condition on arrival at destination, which, of course, is due to condition on leaving and packing (the latter we shall speak of later), this is all important. The choicest fruit out of condition, is of small value.

It is a point, moreover, on which few suggestions of value can be given, what will and what will not stand the journey, etc., being matters which experience only can teach, coupled with careful observation.

Here again direct communication from the distributer would be a great gain. We may remark, however, that neither very green fruit nor fruit almost ripe,—that is just ripe—should be packed. The former meets a bad market because of its appearance, the latter is almost sure to be bruised and "chippy" and also sells at a low price.

We now come to PACKING. It is not likely that the barrel can be improved upon as a package, though the barrel itself may. We hear of a ventilated barrel, recently invented in America, which, if all said of it is borne out in practical experience, bids fair to supercede the present close one. There is only one thing, perhaps, which may prove an objection. We refer, however, to its peculiar feature, fearing that the free passage of the air through it, may cause shrivelling of its contents when kept in it for any lengthy time, and as this point is more for the retailer to decide, it would not show till, say the next season, so that growers may find it useful not to ship *all* their early consignments in this new package—should it come into use—until they are satisfied as to this possible objection. Honesty of packing, that is the same quality throughout, cannot be too strongly urged. The grower who persistently, yea, occasionally transgresses this rule, will have cause to repent his folly. We observed a strong case in point only last month. The apples of a well-known shipper were badly topped. A high price was paid not only because of the top but because of the brand, which usually insured good packing. On finding out their condition below, the confidence of the buyer in that brand was thus rudely shaken, and he will not be inclined to bid for the next lot shown. This is only one case in many but it shows the necessity of *always* packing honestly; for confidence is a guarantee of price.

We know an English grower, who with every package sends a small printed ticket affixed which runs, "This fruit is packed as far as is practicable the same throughout," his name following; the result being tardy, perhaps, but sure, that wherever his goods are marketed, a good price is secured. Of course the packing bears out the label. Some of our Canadian friends may emulate this idea, though with a brand instead of label, and where due care is taken we believe whoever does, will not find it labor in vain.

(*To be concluded.*)

ORCHARD PLANTING.

WE are trying to grow too many varieties of apples in this Province. It may do very well for exhibition purposes, but not for profit. If we wish to make apple growing pay, we must confine ourselves to a few varieties, and these, such as will suit our climate the best, and that will ship the best, and bring the best price.

The clear skinned, hard, sound winter varieties are what are required for the foreign market. And we need never expect large or even fair prices, so long as we continue to send soft, spongy or fungus-marked fruit abroad. Very often we find an orchard with a little of everything in it, but not enough of any one variety to be worth while shipping. And the sooner apple growers find out their mistake the better. Those planting new orchards should avoid planting any of those varieties that will not stand handling well, or that are subject to the fungus scab. There is nothing which spoils the market value of an apple more than this.

I would strongly recommend to those living in northern districts the planting of seedlings for tap grafting. Some of our finest apples, and which bring the best prices, will not stand the climate of our northern counties. But by top grafting them on our native seedlings or on such hardy stocks as Talman Sweet, Tetofsky, Duchess or the common varieties of Crab, we can succeed in growing almost any variety we wish.

It is always in the trunk or crotches that a tree begins to fail first, and if we get a sound, hardy trunk, and graft into the limbs, we are sure to succeed in having a good tree. I have proved this from experience, and know whereof I speak.

The reason so many pear trees fail to grow in the northern counties is that nurserymen use quince stock to graft them on, and the quince will not stand the climate. If they would use some hardy seedling pears as stock instead of quince, the trees would be far better and much surer to succeed.

Craighurst, Ont. G. C. CASTON.

THE STRAWBERRY LEAF BLIGHT.

OCCASIONALLY we receive inquiries concerning the strawberry leaf blight, its cause and its remedy. According to a late bulletin of Cornell University, the scientific name is *Sphaerella Fragariæ*, or the Sphaerella of the strawberry. It has been spoken of as "spot disease," "sun scald," "strawberry rust," but Prof. Dudley thinks the name Leaf Blight most applicable. This blight first appears on the new leaves about



FIG. 30.—LEAF OF STRAWBERRY, MARKED BY *Sphaerella Fragariæ*.

the time of the setting of the fruit, and if the weather of the succeeding months be dry and hot, it causes serious injury to the vitality of the plantation.

Our readers will recognize this disease from the illustration given above, and also when we describe the spot as at first brownish or red-purple, and when fully matured it has a circular centre, dead white, from one-eight to one-quarter of an inch in diameter.

The red-purple color is the result of the growth of filaments of the vegetative portion A (or mycelium) of this fungus, pushing their way between the cells of the interior of the leaf, disorganizing their contents, and absorbing their fluids. Air spaces are thus formed in the centre of the spot, giving rise to the dead white appearance which results. In the accompanying cut

there is seen a transection of a strawberry leaf of which the portion on the left is healthy, and of its usual thickness, while that on the right shows the margin of a "spot," and this portion of the leaf is shrivelled to one-fifth its orginal thickness. At B is seen the reproductive portion of the fungus, known as Conidia. These Conidia are oblong, and very minute, and when they fall on a fresh leaf-surface, where there is a little moisture, soon germinate, bore their way through the epidermis C, and give rise to fresh spots.

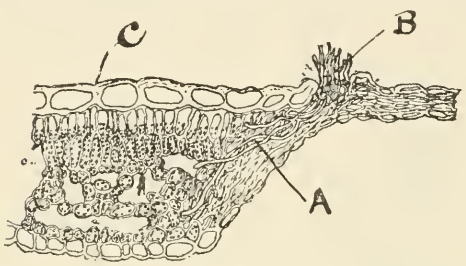


FIG. 32.

In addition to this mode of propagation by Conidia, which are summer spores, and are short-lived, there are winter spores, grown in sacs, called asci. Each ascus, or sac, contains eight asco-spores, and these are preserved in the dead leaves through the winter, and mature in early spring.

The remedy for this fungus is twofold, (1) to use fungicides in summer, and (2) destruction of the old leaves in spring by burning over the strawberry patch. As a fungicide, Prof. Scribner recommends "three ounces of Carbonate of Copper dissolved in one quart of water, which should be diluted to twenty gallons." This should be spread on the plantation after the crop is gathered, every two weeks until September.

The Manchester and the Wilson are especially liable to this disease, while the Sharpless, for instance, is less troubled with it, as a general rule.

STRAWBERRIES—NEW AND OLD.

TO write about new and old varieties is a large subject for a short paper. The names of the different strawberries that have been introduced in the last ten years would fill a very respectable sheet.

Till within a comparatively short period of time strawberries have had but a passing notice. They fought side by side with weeds and grass. At times varieties were very inferior in size ; but now, under better culture and improved varieties, we see immense crops grown for business purposes, yielding millions of bushels to millions of people, proving that man can improve vegetable life to almost any desired point. But the time is coming and is at hand when every farmer shall raise small fruit sufficient for his own use. Strawberries are the first fruit of the season, and followed by rotation red and black raspberries, using early, medium and late varieties of each kind. With some grapes, the small fruits will cover at least a period of three months during the summer season.

The strawberry of long ago grew wild. They are naturally inhabitants of nearly all countries, and as much cultivation will improve ordinary farm crops, so also will it improve the strawberry.

Since the first seedling strawberry was introduced nearly fifty-six years ago, thousands of varieties have been grown. The next in importance after Hovey's was Wilson's strawberry. This berry has served its day and more profitable varieties have taken its place.

Three things should be kept in mind in planting, *viz.:* (1) whether for home use or pleasure; (2) for home market or shipping a long distance; and (3) the quality of the soil in each instance.

Many of the kinds now before the public have bad and good points combined. Under the above conditions there are many kinds desirable to cultivate when a special merit is required. It is impossible to combine all the good points in any one variety. You can get quantity in some varieties, in others quality. Again, some varieties can be shipped hundreds of miles, others need care to get them to the nearest market.

As in the past, so in the future. There are thousands of seedlings undergoing tests every year. Men are trying to approach as near as possible the perfect plant and berry.

Of the old varieties many are very desirable and adapt themselves to all localities, and also to much neglect, *viz.:* Crescent, Captain Jack, Cumberland and Manchester.

Others of recent date maintain their popularity wherever they have been planted, *viz.:* Bubach No. 5, Haverland, Warfield No. 2. These fertilized by Jessie will give results that will be satisfactory, and if properly cared for they are all large and productive.

I don't remember in any season heretofore so many new varieties offered as there is for the coming spring.

I might just name them and I may speak of them more fully by and by (I have no axe to grind): Mrs. Cleveland, some of Mr. Loudon's, Florence, Lady Rusk, Parker Earle, Stayman's No. 1 and the Great Pacific.

Granton, Ont., Jan. 11th, 1890. JOHN LITTLE.

THE RELATION OF BEES TO FLOWERS AND FRUIT.—I.

THE relation that bees bear to flowers and fruit may appear to the fruit grower as of little importance, and scarcely worthy his consideration. Whatever his opinion may be, however, the fact remains that the wants of bees in all their genera and species are supplied by the floral world, and the insect world gives to the flowers in return that aid without which they must soon become extinct. To appreciate the relation-

ship we must know something of the structure of a flower. We do not know all; wiser heads than ours have failed to penetrate the mystery of their entire make-up. "When no man asks me what is Time," says St. Augustine, "I know it very well, but I do not know it when I am asked." One may say as much of a flower. Tennyson was of this mind when he wrote :—

"Flower in the crannied wall,
I pluck you out of the crannies,
Hold you here root and all in my hand,
Little flower; but if I could understand
What you are root and all, and all in all,
I should know what God and man is."

Rousseau defines a flower thus, "The flower is the local and temporary part of the plant which procures the fecundation of the germ in or by means of which it is effected." Another botanist says, "A flower is that temporary apparatus, more or less complicated, by means of which fecundation is effected." Still another tells us, "The flower is an apparatus composed of two envelopes, the *calyx* and the *corolla*, and the *essential organs* proper to insure their reproduction." From all of which we learn that plants blossom in order that seed may be produced and perfected and the race perpetuated. It is from the "essential organs"—the stamens and pistil—of the flower that bees derive all that is needed for their own wants and the wants of their offspring. These carry the reproductive organs of the plant, its other parts being mainly protective and ornamental. If we take an ordinary flower and examine it, the first part brought under our notice is a kind of cup—the calyx. In most flowers this is green. Before the blossom opens this cup encloses the internal parts, then in process of development. It protects them in their tender condition from external injury. In time the calyx bursts and reveals the most conspicuous part of the flower, the corolla. The main function of the corolla is to attract insects. This it does by color and perfume. Within the corolla will be found the anthers, which bear the pollen or male principle of the plant. At the base of the petals and surrounded by them is situated the pistil or female organ of the plant, embracing the ovary or seed vessel, which contains the ovules or seed germs; these when fertilized and developed become the seed. In order that fertilization be effected and seed developed, it is necessary that the pollen grains come in immediate contact with the ovarian germs. As most plants are hermaphrodite and carry both anthers and pistil, one would think that self-fertilization would be assured in all such cases. So it would in many cases if the two genders were actively co-existent; but nature has a wonderful fertility of resources in making hermaphrodite flowers practically unisexular, by bringing the male and female organs to maturity at *different* periods. She employs other and most surprising devices in bringing about the same result, many of them found in the *form* of the flower. (On this subject Darwin's "Origin of

Species," Cheshire's "Scientific Beekeeping," and many other excellent works may be profitably consulted.) We are at present considering the work of bees as friends of the fruit-grower, and shall confine ourselves to their operations on his behalf. The trees and plants from which our fruit are taken bear bi-sexual flowers, and would be capable of self-fertilization if an all-wise Providence had not designed their flowers so that in-and-in breeding is prevented, and cross fertilization with all its advantages secured. The bee being made the complement of the flower is the chief agent employed in bringing this about. That this may be the more surely effected, her food (pollen and honey) is found over and in the flower. The nectar glands that secrete the honey usually lie around and in close proximity to the ovary. On alighting upon a flower to collect pollen or sip honey, her head, legs and body get liberally dusted with pollen. This she carries to the next flower visited, into which she thrusts her head ; when, if the stigma be in a receptive condition, the pollen, borne from flowers previously visited, will be dislodged and adhere to the sticky stigmatic surface, where it remains and accomplishes the work of impregnation. In this she acts the part of a discriminating hybridist, for bees as a rule only visit one class of flowers while out on a foraging tour.

Owen Sound. A. McNIGHT.

STAKING YOUNG TREES.

"JUST AS THE TWIG IS BENT, THE TREE'S INCLINED."

THE above heading may seem at first thought to be too insignificant under which to write an article for the public eye, but when we take into account the results of rightly training young trees, or the neglect of it, the topic becomes one of no little importance. When I pass an orchard of bearing trees, and see some leaning one way and some another, and many of them with a bias of fifteen or twenty degrees to the south-east from the force of the north-west winds, I come to the conclusion that they were poorly cared for when young, and allowed their own way of growing under adverse circumstances until too late to remedy their ill condition. Young trees like young minds must be rightly started in their course to prove profitable and present a shapely appearance, and this thought will have its importance in our minds, just in proportion as we are careful to note the results of right or wrong management. In point of profit, a one sided tree, leaning at an angle of forty-five degrees, cannot carry more than two-thirds as much fruit as a straight, well-balanced tree, without danger of breaking down entirely, or greatly increasing its deformity, and the chances are that the fruit will not grow so large, or ripen as evenly as on a straight tree upon which the sun's rays act in an even, unhindered freedom. In

point of taste and beauty, as well as of convenience, how much better an orchard of upright, well-ordered trees appears, compared to one in which some of the trees lean one way and some another; and when you drive a waggon for gathering, or a riding vehicle through your orchard, how much nearer to the trees you can get, and better you can work in gathering, and in other ways, if your trees stand perpendicularly instead of at inconvenient angles. If trees are trained straight and shapely the sap flows more freely, and they will make a thriftier growth in a given length of time, and the chances are that they will bear earlier and a greater quantity than if allowed to grow cramped and ill-shaped. I am confident, too, that a firmly staked tree, as soon as it is set out, has a better chance to recover the transplanting than one that is left to the caprice of the wind and the power of the sun's rays around its root, open as the ground will be by the waving of the tree in the wind. This is especially true in sandy land and its results apparent in a dry season, and many lose their young trees from this and kindred reasons, as from the loose, careless manner with which they are set out. All air should be excluded from the roots as the tree is set in the ground, the dirt firmly tread around, and if any loose litter of any kind can be piled around the roots to keep in moisture, all the better. While cultivating among my trees and bushes, I draw all hoed up weeds around the roots and they serve as a protection against the sun's rays. A coat of lime white-wash on the trees every spring is a protection against borers, and serves to keep a clean appearance to the bark of the tree. A good cedar stake, driven about six inches from the tree, with a leather loop around just below the lowest branches, with the ends fastened on the top of the stake by a three-inch nail, will well repay the trouble of doing, as to immediate effects, and the future life and usefulness of the tree will be greatly helped thereby.

Nepean, Ont. L. FOOTE.

THE ONTARIO APPLE.

HAVING held the Ontario Apple in high esteem for several years, and recommended it to my friends with free distribution of scions, I was much pleased to note its rating in the January HORTICULTURIST, 39 in a possible 40, ahead of all the others named, including King, Gravenstein and Northern Spy. I shall be glad to see the Ontario Fruit Catalogue completed on that system; it will be a most valuable guide to planters. I would not mark Ontario so high for dessert, but my locality does not develop high quality. For thrift, productiveness and long keeping I have nothing equal to Ontario.

Yarmouth, N.S. C. E. BROWN.

THE RASPBERRY.

IN the earlier days of fruit history in Canada, when the first settlers had to depend on the wild natives of the country, what a luxury it was to get the raspberry growing along the old snake fences. Nature, always provident and prolific, gave us then what we could not otherwise have obtained. But as time passed, the hard grass sod choked our wild friends, and the cattle browsed them down, so that they gradually retreated before the march of civilization. As these became scarcer the small fruit men came along and rescued some of the best plants, and improved them by high cultivation. Where nature left off skill began, and as has been the case with all other fruits, a gradual advance took place in the improvement of the raspberry, so that to-day we have varieties suited to every soil and climate. It is not right that anyone owning even a city lot should be without this lovely and delicious fruit, especially when it can be grown so easily.

It is advised that any number of plants, from two dozen upwards, should be obtained, either from a nurseryman or a neighbor, planted in a row from eighteen inches to two feet apart, the ground having been thoroughly well prepared by digging and manuring. The plants should be set in the autumn or early spring. No attempts should be made to grow fruit the first year, because if long canes are planted and fruit is produced, the suckers which should give the berries the following season will be weak and unproductive; therefore the plants should be cut to six inches in length above ground before planting. The raspberry delights in a moist, cool soil, not a wet, soggy one. To produce the proper conditions, drain well if the ground is at all wet, and mulch heavily with long barn-yard manure. The best variety to procure is the Cuthbert, it is a fine red berry of good size; the plant is fairly hardy, the fruit is firm and rich. From four to five canes should be grown to a hill, that is, from one plant. The row should be maintained as straight as possible; all suckers appearing outside the row should be treated as weeds and pulled up or cut off. The row itself may be allowed to thicken, but care should be had not to allow it to get too thick unless plants are required. It is best to have cedar stakes to tie the canes to; these should be two inches thick, driven firmly into the ground. The raspberry is a biennial perennial, that is the roots live on indefinitely, but the plant grows up one year, fruits the second and then dies. So that every year the old or bearing wood has to be cut out. This may be done after the fruit has been gathered, or where it is required to arrest the snow during winter, it may be removed the following spring. The Golden Queen is considered the hardiest and best white berry.

The red varieties will sell in almost any town or village for 15 cents a

quart, and the whites for about 20 cents*, if properly handled in neat packages, so that the berries are fresh and not crushed.

There is money in raspberry growing if the plants are properly cared for. Half an acre of raspberries will produce one-third more than the same area of strawberries, and as the price received for them is greater and they are much less costly to cultivate, there is plenty of money in them until the price falls. Try it.

Ottawa. P. E. BUCKE.

THE BORDEAUX MIXTURE.

SO important has this Copper Solution become to fruit growers, that it is important to have the formula for its preparation of convenient access. A late Bulletin of Cornell University gives a modified fomula, which is cheaper than the original one, more readily applied and less injurious to the young foliage. We, therefore, give our readers this new formula, hoping that our orchardists, who are troubled with the scab on apples and pears, will give it a thorough trial, and report to us the result.

(1) Sulphate of copper, 6 lbs., dissolved in 4 gallons of hot water.
(2) Lime, 4 lbs., " in 4 " cold water.

Mix the two solutions as above, and, when desired for use, dilute to 22 gallons with cold water.

PLUM GROWING IN MICHIGAN.

AT the recent meeting of the Michigan State Horticultural Society, Mr. Benton Gebhard, President of the Oceana Society, read a paper on the history of plum-growing in that county, and the varieties and modes of culture, in which he said there were plum trees in the country which were thirty and thirty-five years old and had produced twenty paying crops, and many more, twenty and twenty-four years old, which had yielded fifteen paying crops, in some cases six bushels to the trees, with trees still in full vigor. Mr. Gebhard instanced an orchard of sixty bearing trees from twelve to eighteen years old which had produced seven profitable crops in succession, and whose receipts for three years last past aggregated $706. Mr. Gebhard said:—

"In starting a plum orchard the necessary thing to do is to procure old *terra-firma* on which to plant your trees. By this I mean a good, heavy, sandy loam, and still better if mixed with some clay, and not the white

*NOTE BY EDITOR.—In Western Ontario we do not get such prices as these, unless for the very earliest.

drifting sand among the pine stumps on our lake shore. Prepare the land just the same as you would for any other large orchard fruits for planting. Pulverize the soil thoroughly and keep it in a good state of fertility. Plant the trees from eighteen to twenty feet apart, and give them a good and thorough cultivation each season. In bearing orchards, plow the ground in the fall or spring each season, being careful not to break any large roots Cultivate with a spring tooth cultivator or harrow, early in the season, as then is the time that plum growth is made. A bearing orchard requires more cultivation in a dry season, than a young one. As to suitable varieties for orchard planting, I would say that there are a great many varieties of plums grown in our section of country—perhaps fifty or more different varieties in all. Many of these varieties are in bearing for which the growers have no correct name, and quite a number of these unknown varieties are large, fine and beautiful plums to grow for market. To select a standard list for orchard planting I should choose the following varieties, named in the order of ripening:—Washington, Bradshaw, Duane's Purple, Prince Engelbert, Union Purple, Lombard, Genii, Quackenbos, Purple Egg, Coe's Golden Drop, Reine Claude, Shropshire.

"Of new varieties the Genii and Shipper's Pride appear to be promising, both being medium to large, fruit a dark purple with heavy bloom, having excellent shipping qualities, and immensely productive. Also the Field for early and Stanton for late are prolific, and very promising new plums. The Japanese plums are also on trial, and have fruited some. The Botan seems to be the most promising. This is quite hardy, very early bearer, and seems to be productive, with the exception of wet or cold seasons. During those unfavorable seasons, the blossoms seems to blast, or else do not fertilize properly, as it does not bear much fruit in such seasons. The fruit is early, large and beautiful color, and of a fine flavor. There are also many other new varieties on trial which have not fruited as yet, such as Moore's Arctic, Naples, Marianna, Victoria, Hudson Egg, Niagara, etc."





LINES ON THE FOXGLOVE.

SIR,—I see "Grandma Gowan" still contributes to your Journal, and now Grandma Manley sends a few lines. We belong to the past, and must ere long leave this cold, calculating generation to solve their evolution problems, and it may be, like the alchemists a few centuries ago, trying to find the "Elixir of Life." "History repeats itself."—M. W. MANLEY.

I know they are gathering the Foxglove's bell,
And the long fern leaves, by the sparkling well.
—MRS. HEMANS.

FRIENDSHIPS when formed will always last,
If based on true esteem,
When lost to sight in memory's urn,
Their names are fresh and green.

The plants that bloomed in childhood's days,
Which in our homes had place,
We love to see their names restored
With super-added grace.

The Foxglove reared its stately form
In Devon's hedge-rows green,
Where various flowers of many a hue,
And Primroses were seen.

And tufts of violets white and blue,
With fragrance filled the air;
The spicy woodbine climbed aloft
And hung its petals there.

And in the garden near the house,
The Foxglove still had place
Among the lilies and the rose,
Of Flora's royal race.

Owen Sound, January, 1890. MRS. DR. MANLEY.

THE TUBEROUS BEGONIA.



I BELIEVE this is destined to become in the very near future, an exceedingly popular flowering plant; as much so, I have no reason to doubt, as the universally grown Geranium. It is as free, and as continuous in blooming as the Geranium is, and with quite as much variety in color. For the benefit of those not yet acquainted with it, I may mention a few descriptive points. The colors are crimson, scarlet, magenta, pink, yellow, orange and white, and ranging through all intermediate shades.

In the many varieties there are many different forms of flowers, from single to the most double, from sky pendant bells, to the boldest, most open, and erect form. Some of these latter are very large and striking.

The plants are continuously in bloom, from the time they commence in May, or June, until late in the fall. I have as yet failed to get any bloom from them in the winter.

The stems ordinarily, even in the green house, die down on the approach of winter and part from the tuber. The tubers are very easily preserved. They can be buried in sand or earth, or put away in the pots in which they grew, in any place where it does not freeze. I notice some authorities give 50 F. as the lowest point to which the temperature should range in the place of storage. I have found that it does not matter should it fall far lower, so long as the freezing point is not reached.

I believe it is the practice of some, to plant the dry tubers of those intended for bedding directly into the open ground, where they are intended to bloom, for the summer. This is done in the latter part of May or beginning of June. I think however, it is better to start the tubers in pots before planting out. Some of the single varieties make first-class bedding plants.

Increase, or propagation, is effected either by cuttings or seed. Named, or particularly desirable varieties are reproduced from cuttings. This is rather a new method of increase as but few cuttings can be obtained from each plant. The cuttings make good blooming plants the first season, but frequently form no latent seeds, or eyes, from which to start again. Seed, although very small, germinates readily, but the young seedlings require constant attention. A few minutes, hot sun, will burn them up, or a little too much moisture, or shade, will damp them off. After leaves the size of a ten cent piece are acquired there is very little more trouble; but until that period is reached, closer attention is required than amateur cultivation can, in all cases, give. For those who do not desire to plant largely, it is better to purchase the dry tubers, or flowering plants of professional growers. These can be procured from almost any florist, at about

the same prices as are charged for other ordinary bedding, greenhouse or window plants. Any flower lover who has not yet tried the Tuberous Begonia should certainly do so, and will find it an easily managed, most satisfactory, and most beautiful flowering plant.

Innerkip, March 8th, 1890. FRED. MITCHELL.

HOUSE PLANTS IN APRIL.

WHETHER in the greenhouse or the window-garden, plants that have done their best all winter are now being made ready for their season in the open air. While they remain within, the increasing heat requires that they have greater care in ventilation and in freeing them from insects. Plants that are taken out in summer, if wanted to bloom in pots next winter, should be kept in the pots; if turned out in the open ground, they cannot be satisfactorily potted again. It is much better to start with new plants from cuttings. Such plants may often be plunged in the border, in the pots, with good results. Pots that are set out should stand on a layer of coal-ashes to keep out worms. Such plants should be set in partial shade but never under the drip of trees. Roots of dahlias and cannas, and bulbs of tuberoses and gladiolus, if laid in boxes of soil, exposed to the sun during the day, and taken in at night, may be appreciably forwarded, and ready to plant out.—*American Agriculturist.*

RULES FOR THE GARDEN.

"IX. Grow an abundance of flowers for cutting; the bees and butterflies are not entitled to all the spoils."

"X. Keep on good terms with your neighbor; you may wish a large garden favor of him some day."

"XI. Love a flower in advance, and plant something every year."

"XII. Show me a well-ordered garden, and I will show you a genial home."



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NOTES AND COMMENTS.

AN apology is due our readers for the lateness of our March issue, which was due to the straying of some of the electrotypes which had been forwarded to the printers by mail. We hope to be more prompt in future.

MR. L. FOOTE, of Nepean, Ont., promises us a series of articles on practical horticulture, which are afterwards to be issued in pamphlet form. We believe such a series will be of special interest to a large number of our readers who are taking up this branch of industry.

THE MILLS GRAPE, an engraving of which appeared on page 102, vol. XI., will be among the plants distributed in 1891. Mr. W. H. Mills has very kindly donated a thousand of these valuable vines to our Society, but, as it is too late to put them on our list for this spring, it is necessary to hold them over for a year. Anyone, however, acting as agent in extending our membership may have one of these vines for each new subscriber for the year 1890, which he will send in during the month of Aprll.

THE YELLOW TRANSPARENT APPLE is highly commended in the report of the Ohio State Horticultural Society, of 1889. It was pronounced by several members as the best early apple, and superior to the Early Harvest. Have any of our readers given it a trial as a market apple?

THE HILBORN RASPBERRY is also highly recommended in the same report; Mr. F. R. Palmer claiming that it was better than the Ohio and best of all black raspberries.

THE WORDEN GRAPE is commended by the editor of the *Country Gentleman*. He thinks the reason it was not appreciated at first was because so many spurious plants were sold, which were really Concord; and this led many to believe they were one and the same; but now its value is beginning to be known among cultivators. A Chicago dealer is said to have sold 100 baskets of the Worden lately at 90 cents a basket, when Concords were selling at 30 cents.

STRAWBERRY GROWING is the title of a paper read before the Farmers' Institute at Centralia, Ill., by Mr. J. N. Kerr. He gives some very good pointers for growers; for instance, in regard to marking out for planting, he recommends the wheelbarrow as a most useful implement, and when used by a competent hand as being both rapid and accurate. Where exact distance between plants is desired, a nail, screw or other device is fixed in the rim of the wheel to

indicate the exact place for the dropper to place the plant and where the planter is to plant it. The varieties depended upon for main yield about Centralia are nearly altogether the Crescent and Warfield, the latter coming into pretty popular use only during the last year. Mr. Kerr reports this to be a very fine berry and very prolific, and he says the plant is a more vigorous grower than the Crescent. Other growers, however, say that it does not equal the latter in point of productiveness. He mulches his strawberry beds with wheat straw and uses from five to eight loads per acre, costing on an average $15.00 per acre.

INK FOR ZINC LABELS.—*Popular Gardening* gives the following recipe: two parts verdigris, two parts sal-ammonaic, one part lampblack, and twenty parts of water; mix well, and keep in a bottle with a glass stopper. Shake before using, and write with a steel pen. Common writing ink, in which a little sulphate of copper has been dissolved, will also answer the purpose, but a quill should be used with the latter.

APPLE SCAB.—Prof. Goff says the best preventive yet known for this fungus is ammonical carbonate of copper; one oz. carbonate of copper dissolved in one quart of ammonia, diluted with ninety parts of water, sprayed upon the tree and fruit before the scab is too far advanced.

THE BOX FROM RUSSIA.—A large box, containing some 2,000 scions of fifty or sixty varieties of Russian apples and pears, has arrived from Mr. Niemetz, of Rovno. After some conference with Mr. Saunders and Mr. John Craig, the latter of whom is the horticulturist at the Central Experimental Farm, it has been decided to consign this valuable stock to the care of Mr. Craig, who will have them grafted and thoroughly tested at the various farms and supply us with the most valuable kinds, in quantity sufficient for distribution from time to time. A full list of these varieties will be found in another column, and for further details we refer our readers to the letters from Russia.

KIEFFER PEAR.—This variety is highly commended by some New York State growers as a profitable pear to grow for market. They claim that it is as easily grown as potatoes, and though it is of a miserable quality, yet its beautiful appearance commands for it a ready sale in the markets at the best prices. The report of the horticulturist of the New York State Agricultural Station for 1889, while acknowledging its many strong points, such as brilliant coloring, vigor of tree, earliness of bearing and freedom from injury to fruit by disease or insects, says it may become popular in the markets as a canning pear, but this is all that should be expected of it, as it seems unwise to place a pear of such qualities on sale as a dessert fruit.

THE LATE MR. CHARLES GIBB.

VERY sad news for the fruit growers of Canada is the announcement of the death of Mr. Charles Gibb, of Abbotsford, Quebec, on his way home from Ceylon. There is, perhaps, no man in Canada who has so freely and generously devoted himself and his wealth to the advancement of the science of pomology as Mr. Gibb, and his labors have won for him many an expression of grateful appreciation. We all feel that in him we have lost a dear personal friend, whose place can not be filled by another.

Mr. Gibb had gone to China and Japan to study the pomology of that country, and was on his way back when his death occurred at Cairo, in Egypt, on the 8th of March, at the early age of forty-five years. Particulars will follow shortly, when we hope to give him a more extended notice, illustrated, if possible, by a photo engraving.

YIELD OF THE GRAVENSTEIN.

MR. JOHN DONALDSON, in a paper recently read before the Nova Scotia O.A.C. graduates on the subject of Apple Culture in Nova Scotia, gives a very bright picture of the profits, such as we fear, will not often be realized. He says:—

"The Gravenstein tree in our county bears twenty-four or twenty-five barrels in

the bearing year, which will make twelve barrels per year, at the average price of two dollars per barrel—twenty-four dollars per tree—forty trees per acre, making the magnificent sum of $960 per acre. This may sound to some like an ideal orchard: but I, myself, in my orchard, have taken sixteen barrels from one tree; yet, even dividing my former statement by one-half and allowing six barrels per tree, gives the fine sum of $480 per acre, making five acres equal $2,400, The average expense of raising and packing apples ready for shipment would probably not exceed one dollar per barrel."

We protest against such extravagant figures going before the public. Neither the Gravenstein, nor any other variety, will average twelve barrels per annum for each tree; from two to three barrels is a much fairer average for most varieties, and $100 per acre is nearer the true average income from a commercial apple orchard.

Question Drawer

THE DOMINION CONVENTION.

22. I am much interested in reading the press account of the Dominion Fruit Growers' Association, and would like to know how I can secure a complete report of the proceedings.—A. S. DICKSON, *Seaforth.*

A verbatim report of this Convention has been made, and our Association hopes to be able to secure a sufficient number of copies for all our members.

BURNING ASHES.

23. How should waste timber be burned so as to procure the best possible results in securing the ashes?—C. E. B.

This seems to be simply a matter of convenience. No doubt the best results would come from cutting and piling the brush and timber in low spots, protected from the wind, and then distribute the ashes afterward.

MIXING HELLEBORE WITH POTASSIUM SULPHIDE.

24. SIR,—In the November number, page 310, there is a remedy for gooseberry mildew, to be used by spraying. This suggests the question whether the white hellebore for the worm might be mixed with the solution without injury to either, to save time, or whether the potassium sulphide would of itself have any effect on the worm?—G. J. R.

Reply by Frank Shutt, Chemist, Experimental Farm.

Regarding the effect of mixing potassium sulphide with hellebore, I would say that as far as I am aware their action as a fungicide and insecticide respectively would not deteriorate by such a method of application.

SPRAYING APPLES AND PLUMS.

25. COULD you inform me where I could purchase a sprayer for spraying apple and plum trees; one that would do for spraying two or three hundred trees. Also, what amount of Paris green and water do you use, and do you consider spraying a success?—ED. MCCOMBS, *North Ridge, Ont.*

The Beecher spraying pump, manufactured in London and advertised by J. F. Wilson, Chatham, for $3.50, answers an excellent purpose so long as it is kept in good order. One ounce of Paris green is enough for twelve gallons of water. Spraying is certainly a success if rightly attended to, both for Codling moth and plum curculio, although much less certain in its results with the latter than with the former.

APPLES FOR NOVA SCOTIA.

26. SIR,—I duly received the numbers of THE HORTICULTURIST, and now enclose subscription. Hardy apples and small fruits do well here. I believe there are varieties of fruit not grown in this part of Nova Scotia that would be hardy here. I notice a statement in the October HORTICULTURIST that the Bessemianka pear endures a temperature of 40 degrees below

zero without injury. The coldest we have had in eight years was this winter, when it was 24 below.

Do you think that the Montreal Peach Apple would be hardy here? Would not the Simon's plum be as hardy here as at Collingwood, Ont.? Theory is good as a guide to practice, hence the best way to answer these questions is by trial. In the meantime your views on these questions in the next number of your valuable magazine would be interesting to your maritime subscribers.—SANFORD H. PURDY, *Greenville, Cumberland Co., Nova Scotia.*

No doubt the Montreal Peach would succeed with you, and also the Duchess and the Wealthy. Simon's plum is too new a fruit for us to make any statements about it's hardiness.

PRUNING YOUNG TREES.

27. I WOULD like something said in your your next number about pruning young trees up to the age of six or eight years.—A. J. KELLY, *Talbotville, Ont.*

If one is desirous of having shapely apple trees, the earlier one can take them in hand the better. If left growing too long in the nursery rows they will be slender, and in most cases have a poorly formed head, for nurserymen have too much in hand to consider the symmetry of the tree, except at salable age. It is best, therefore, to buy trees at two or at most three years of age, when there will result little loss of root fibre. Then select three or four side branches as the basis of future operations and stop the growth of the leader, as in Fig. 35. During the first summer only two or three buds from each of these should be allowed to grow, so that by the end of the season the tree will appear somewhat as in Fig. 33. No precise rule can be given for this work; much must necessarily depend upon the taste and judgment of the operator. In general, something of the same process must be repeated with the new growth year after year until a symmetrical head is well developed, and, if done with judgment, little heavy pruning will ever need to be resorted to. The great point to be aimed at is to avoid long limbs, bare of fruit spurs on the one hand, and too much crowding of branches on the other. The natural habits

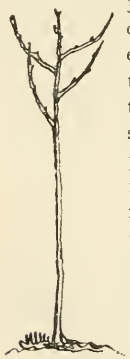


FIG. 32.

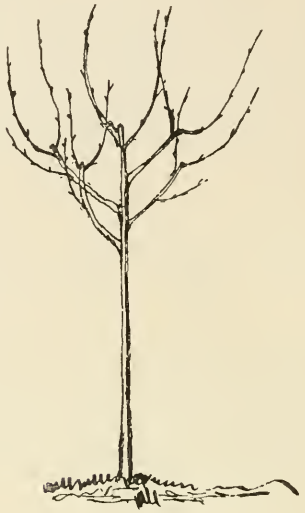


FIG. 33.

of the tree must also be studied and these tendencies favored; thus it would be manifestly wrong to try to make a Northern Spy and a Greening follow the same general form. The enquirer does not say what kind of trees he wishes to prune. We have treated only of the apple; the pear and the peach need a different treatment, and will be taken up at some future time if desirable.

PROPAGATING RASPBERRIES.

28. SIR,—How are those raspberries propagated by the tips? Are they fastened down after they have done fruiting? Will the canes produce fruit more than one year? —GEORGE HANNAFORD, *Pevensey, Ont.*

This question is pretty fully answered on page 49. The Shaffer (known botanically as *Rubus occidentalis*), which we distribute this spring, is a cap raspberry, and all of this class are propagated by tips. They will often take root of themselves in soft ground, but usually, on account of the swaying by the wind, very few plants can be got without attention. The best time to begin layering is about the close of fruiting season, or as soon as the tips reach the ground: for by

doing this early the side branches will often push out and may be also layered, and thus a large number of tip plants may be raised from one in a single season. The best time for planting these is in the spring, and it is not too late when the young plant has begun to grow. One of these tip plants is shown in Fig. 34. It is well furnished with fibrous



FIG. 34.

roots, which are easily dried out by the wind and sun, and consequently must be carefully guarded from exposure.



FIG. 35.

The other class of raspberry, which embraces varieties of Rubus Idaeus, the European garden raspberry, is entirely propagated by suckers, as represented in Fig. 35, and, where the ground is dug or ploughed about old plants, these will spring up in great abundance. The old wood is useless except as a handle in planting and afterwards may be cut close to the surface,

Canes do not produce fruit more than one year, and may be cut out either soon after fruiting or in the following spring. Considering the ease with which the bushes may be propagated, there is no occasion to purchase in large quantities, for when once a man has the varieties he can soon have as many as he wishes.

THE CUT WORMS.

29. IN this vicinity our gardens suffer from the ravages of the cut worm, which is about one inch long by about three-sixteenths in diameter and of a dirty grey color. Anything that comes up green in the shape of garden stuff seems to be the attraction and is sure to suffer more or less; therefore it is necessary to sow considerable more seed. Can you or some of the readers of the HORTICULTURIST tell us how this worm comes to exist, and what will drive it out of the garden?—W. I. OTT, *Oak Lawn, Carberry, Man.*

There are many species of cut worms, and from the description it would not be easy to identify the one which is troubling our Manitoba correspondent. It is not surprising that this enemy should be looked upon as somewhat mysterious in its origin, owing to its nocturnal habits. Like a thief, who steals while others sleep, so this destructive worm avoids the light of day and crawls under the surface of the soil to hide. The moth, too, secretes herself in the daytime in crevices of the bark, and is therefore little known. The destructive work of these worms is too well known to need description, as every gardener has had enough unpleasant experience in replanting cabbage, tomato and other plants owing to their ravages.

The cut worms nearly all belong to the genus *Agrotis*, of which there are many species, all more or less alike in the larval state, being smooth and naked, and mostly grey, brown or black in color; though the moths differ more or less in color, size and marks. Among these we briefly refer to three species, for the cuts of which we are indebted to the Etomological Society of Ontario.

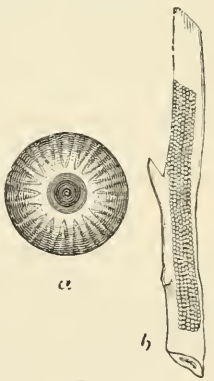


FIG. 36.

1. The Variegated Cut Worm *(Agrostis Saucia)* often deposits its eggs on young twigs of the apple, cherry or peach, as is shown in Fig. 36, where also may be seen one of the eggs magnified.

2. The Greasy Cut Worm *(Agrostis Ypsilon)*, Fig. 37, is of a dull brown color

inclining to black, and when full grown attains a length of one and a half inches. The fore wings of the moth are mostly brownish grey with hind wings almost white. This is one of the most common of cut worms, and is widely distributed, being found from Georgia and Texas on the south

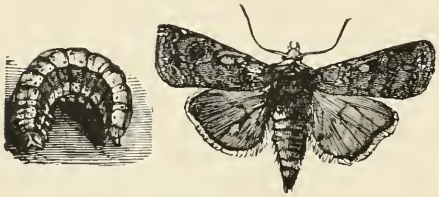


FIG. 37.

to Nova Scotia and Manitoba on the north. It is very destructive, scarcely any kind of garden produce escaping.

3. Cochran's Cut Worm *(A. Cochrani)* was discovered by Mr. Cochrane, of Calumet, Ill., a species of climbing cut worm which ascends apple and pear trees and grape vines in the night time, eating off the buds, even leaving potatoes, peas and other garden stuff in their preference for fruit, buds and foliage. Mr. Cochrane found them about midnight, well up the limbs of even tall young trees, but dwarf trees particularly suit their convenience. It is said that four or five of these would in two nights completely strip a four-year-old dwarf of every fruit and wood bud, and, if out in leaf, completely denude it of foliage.

Prof. Saunders, in his valuable work on "Insects Injurious to Fruits," recommends



FIG. 38.

catching and killing as the surest way of destroying them, although sprinkling the plants with slaked lime, ashes, hellebore or Paris green water is helpful.

For the Climbing Cut Worms, bands of tin, clasping the tree in an inverted dish form, will be most effective; or a circular hole, with perpendicular sides, dug about the tree will prevent them from reaching the trunk.

Open Letters

UNUSUAL.

SIR,—From a plant of the Jessie strawberry which I have there was a runner allowed to root after July, which ripened two strawberries in October of the same year.—J. P. COUCH, *North Toronto.*

SEEDLING PLUM.

I HAVE a Plum in my garden that has not been molested by the Black Knot. I have known it for the past eighteen years. It is a seedling, as it bears the same proud shoots from the roots. It is an excellent plum, about the size of the Lombard, and I think it a better plum. It is pale green. If you would like to try it, I would send you two or three slips in the spring, as I have some fine ones.—JOHN GIBBARD, *Napanee.*

COMPLIMENTARY.

SIR,—I take a pleasure in renewing my subscription to THE HORTICULTURIST. It has been so much improved in the last few years and contains so much practical information that I would be very sorry to be without it. I received the rose tree all right in the fall, and it is doing very well. The "Yellow Transparent" apple tree met with some misfortunes, but appears to be hardy and fairly vigorous on the north-west side of a clay hill.—J. R. D., *Almonte, Ont.*

SIR,—I consider your paper the best of its kind published, and would not be without it for five times its cost. Faithfully yours. ROBERT NORRIS, *Langley, B.C.*

SCIONS OF FRUIT TREES IMPORTED FROM RUSSIA BY THE ONTARIO FRUIT GROWER'S ASSOCIATION, SPRING OF 1890.

SIR,—I sent you a large box, 500 Kilogrammes in weight, with about 2,000 Scions, *via* Warsaw, Hamburgh, Liverpool and per Beaver line to Montreal, to be forwarded to Grimsby.

You will find many of the same names, because I have collected them from various parties; but this will be interesting to you for more careful identification and nomenclature. You will no doubt find some among them which are already disseminated in your country, only under other and incorrect Russian, or English names, but it is difficult for me to know which you have.

I selected everything which I thought would succeed in Canada, and hope you will be pleased. I have not yet received your box, for, as I wrote you. it was arrested at Bremen, on account of the two little grape vines which were in it. It has cost me a great deal of money. and now after all, I fear it will be lost. Yours very truly, JAROSLAV NIEMETZ, *Rovno Wolinia, Russia.*

NOTE BY EDITOR.—The list will be given in May number.

Our Markets

THE APPLE MARKET.

DURING the third week in March there were only about 4,000 barrels of apples exported from all the Atlantic ports to Great Britain. Although prices in Britain are high, they are also very high in our own markets, and consequently there is little reason for exporting. Toronto market quotes apples at from $3.00 to $4.00 per barrel; Buffalo, $4.00; Montreal at $4.00 to $6.00; New York City, $5.00. The stock in hand at Montreal is very low, the Trade Bulletin placing it at only 1,500 barrels, which quantity will soon be exhausted.

APPLE CULTURE IN NOVA SCOTIA.

MR. C. F. JUST, of London England, writing to the *Standard*, extols Nova Scotia as an apple growing country. He says:—"Thousands of acres have been planted for years past, and these are rapidly coming into bearing. The western section of the Province around the Bay of Fundy is the most favorable for apple culture, and there is plenty of room for young men, with say one thousand pounds, willing to learn. A Nova Scotia orchard with one thousand trees was declared to me, by the Secretary of the Fruit Growers' Association, to be capable of a return, from the tenth to the fifteenth year, at the rate of two hundred pounds a year, and for thirty years thereafter at the rate of four hundred pounds a year, and all at the initial cost of six hundred pounds. The climate of Nova Scotia is excellent under the influence of the Gulf Steam, which washes its shores.

I was interested to find among the settlers several Englishmen who had tried orange growing in Florida, and had moved to Nova Scotia and grown apples, with profit to their health and their pockets. In fact I was assured that, taking a number of years, the profit from apple culture exceeded that from oranges, apart from the additional benefit of a good climate and of the institutions and laws dear to Englishmen under their own flag.

I could give additional details as to what is being done outside England in apple growing, but conclude that I have said enough in my remarks above to satisfy all as to the renumerative investment it affords if conducted on proper and intelligent lines.

Our Book Table

BOOKS:—*The Horticulturist's Rule Book.* A compendium of useful information for fruit growers, truck gardeners, florists and others. Completed to the close of the year 1889. By L. N. Bailey. Horticulturist at Cornell University, Ithaca, N.Y. Few books contain so much useful information in so little space.—*Transactions of the Indiana Horticultural Society*, for the year 1888, being the proceedings of the 28th annual session, held at Indianapolis; C. M. Hobbs, secretary.

JOURNALS:—*The Canadian Queen*, a fine illustrated ladies' magazine, devoted to fashion, art, literature, flowers, toilet, home decoration etc., published at Toronto, Ont.

For special offers write to *The Canadian Queen*, Toronto, Ont.

CATALOGUES:—R. Holtby Myers & Co's *Complete Catalogue of Canadian Newspapers and Periodicals*, Newspaper Advertising Agency, Toronto, Ont., Canada.—*Everything for the Garden*, Peter Henderson, 35 Cortlandt street, New York City, 1890. This is a beautiful and costly catalogue, and therefore only sent on receipt of 25c. in stamps, which amount however is deducted from the first order.—*Ellwanger & Barry's General Catalogue*, Mount Hope Nurseries, Rochester, N.Y. Fruit and ornamental trees. shrubs, roses, etc. This old and reliable firm celebrates the 50th anniversary of its establishment.—*Roses, Plants, Seeds*, chrysanthemums, geraniums, dahlias etc., 1890. Webster Bros., Hamilton, *Little's Circular of New Strawberries*, choice small fruits a specialty, John Little, Granton, Ont., Canada. *Grapevines and Small Fruits*, T. S. Hubbard Co., Fredonia, N.Y.—*Cleveland Nursery Co.*, Lakewood, Ohio.—*Horticultural Supplies*, Johnson and Stokes, Seedsmen, 217 Market street, Philadelphia, Pa.—*Helderleigh Fruit Farms*, Catalogues and Price List of Plants and Trees, spring, 1890. E. D. Smith, proprietor, Winona, Ont.—*Descriptive Catalogue of America Grape Vines, Small Fruit Plants etc.* Geo. Joselyn, Fredonia, N.Y.—*T. C. Robinson's Catalogue* of *Small Fruits, Grapevines etc.*, Owen Sound, Ont.

THE SPRING OF 1890

FINDS

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OUR PRICES

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Yours truly,

SMITH & VANDUZER.

SUBSCRIPTIONS ARE PAST DUE,

And should be sent in at once, naming at the same time the choice of plant for testing; otherwise we cannot guarantee that any plant will be sent.

1.—RUSSIAN APRICOT. **2.—SIMON'S PLUM.**
3.—JOHN HOPPER ROSE **4.—SHAFFER RASPBERRY (four tip plants).**
5.—WEALTHY APPLE. **6.—BUBACH No. 5 STRAWBERRY (four plants).**
7.—RICHARDIA ALBA-MACULATA. or SPOTTED CALLA.

Address: L. WOOLVERTON,
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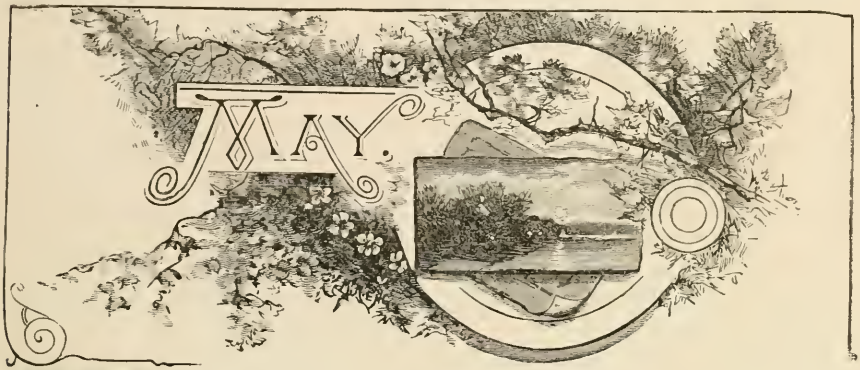
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THE

Canadian Horticulturist.

VOL. XIII. 1890. NO. 5.





SOME SHOWY FLOWERS.

AT this season of the year when as everybody says: "April showers bring May flowers," and everyone is thinking of either buying a few plants from a gardener, or else sowing some flower seeds in the open ground, it will be opportune to call attention to three or four deserving favorites.

Notwithstanding the extreme beauty of our floral treasures and the importance of having a free display of their charms in connection with our homes, we do not advise anyone to break up a pretty lawn in order to plant a bed of flowers, whose gaudy colors disturb the quiet repose of the green in front of the house, or present during a portion of the year an ugly bald patch of earth to the eye, where a smooth well-kept stretch of lawn would be much more inviting. The best place for flowers is on the side of the house, grouped in a garden, or in beds along the drive-way toward the coach house.

Taking them in order, our colored plate represents first, a cutting of *Verbenas*, a class of well-known plants, which are among the most beautiful and most popular for bedding out purposes. Although perennial, many growers treat them as annuals, and raise seedlings for one summer's flowering only. There are some eighty varieties, and one of these, *Verbena officinalis*, is the common Vervain of our ditches. The following are some of the best varieties for bedding out; Boule de Neige, Crimson King, Lady Londsborough, Lustrous and Purple King.

Second, we have *Zinnias*, a race of flowers which have become very popular since the introduction of the double flowering varieties, many of which nearly equal Dahlias for size and beauty. They get their name from J. S. Zinn, Professor of Botany, at Gottingen.

Zinnias succeed best when plants are started in a hotbed, and not transplanted to the open ground until well on to midsummer, and then they require a rich deep loamy soil, and sunny exposure. Most of the garden varieties are descendants of a species called *Zinnia elegans*.

The *Myosotis*, or Forget-me-not, which come next, below, have a special charm on account of their delicate beauty. The name *Myosotis* signifies mouse-eared, from a fancied resemblance in the leaves. There are some forty varieties, natives of the Temperate Zone, and very common in Europe and Australia. We have in Canada only one, *viz*: *Myosotis palustris*, which may be found in wet places; it has a small pale blue corolla with yellow eye.

The Forget-me-not is easily propagated by sowing the seeds outside in springtime, and no garden is complete without a few bushes of them in some moist shady corner.

The fourth, at the lower right hand, is a charming little annual, known as the "Swan River Daisy." Its proper name is *Brachycome iberidifolia*, and its native habitat is the banks of the Swan River, in Australia.

We have found this to flower very freely when grown on a rich sandy loam in a sunny exposure. The flowers are about an inch in diameter, and in color are chiefly blue or white, with a dark centre. The seed may be sown in the open ground.

No ornament to the table or mantel, can surpass a tastefully arranged boquet of cut flowers; while the growing of them is not only a healthful employment for our women, but a study in æsthetics which cannot fail to benefit anyone who engages in it.

It is often a question how best to pack flowers to send to a distant friend, and this is well answered in the following, from an American paper:

"The best way is to pack the flowers in ice. This is a sure preservative, especially if a little salt is sprinkled over the crystalline surface. Another mode in which flowers are sent in complete preservation, even to Europe, is to pack them closely in two tin cans, covering the stems in moist cotton. Over all a layer of wet cotton is placed. At the end of the sea voyage the buds and flowers will be found fresh and fragrant as at the beginning. To keep flowers from day to day—that is cut flowers—it is only necessary to sprinkle with water, place the stems deep in moisture, and, if necessary, put a light layer of cotton over them. Flowers can be made to last a long time if carefully watched, but they require the delicate nurture of a lover of blossoms."

THE DOMINION CONVENTION OF FRUIT GROWERS.—III.

BEST APPLES FOR EXPORT—RUSSIAN VARIETIES—FORESTRY.

THE export of winter apples was taken up by Mr. J. T. McBride, of Montreal. He thought that the Spy and the Greening would do better sold in our home markets than exported. As a general rule he had found that the earlier shipments made more money than the later ones. One thing he protested against, and that was the bringing in of American apples to Montreal and the re-branding them as Canadian before exporting them, because Canadian apples were in the best demand. On the whole he was of the opinion that more money was lost than was made in shipping apples, and that the number of shippers who had become rich by the exportation of apples, could be counted upon the fingers of one hand.

Mr. Shepherd, of Montreal, had experimented with the Cochrane fruit case, which was illustrated in the CANADIAN HORTICULTURIST, Vol. XI, pages 115, 116, and had great success with it in exporting tender apples. For instance, the Wealthy was a tender apple, and he had tried shipping it to the British market, each apple being packed in a separate compartment in this case, somewhat in the way in which eggs were sometimes packed for shipment. The report of the consignee was that the Wealthy was a "superb apple." In such a package he believed that the Wealthy and other such tender apples could be shipped with perfect success.

Mr. C. R. W. Starr, of Nova Scotia, speaking of the great apple of his Province, the Gravenstein, said that it had become popular in England, and was wanted in regular shipments to keep up the demand which had been created for it. Last year the crop of this apple had failed in Nova Scotia, and German Gravensteins had been imported, and these might henceforth prove to be strong competitors. Formerly it had been very profitable to ship Nova Scotia Nonpariels to England in the month of May, but now that Australian fruit had begun to come to the English market in the middle of April, it was found necessary to get the Nonpariels in before those began to arrive. He thought that apples ought to be sold in the British market by private sale, as is done with potatoes. An effort had been made in this direction in the interest of Nova Scotia fruit, and to some extent had proved successful. With regard to the ventilated barrel, his experience so far was unfavorable, on account of the foul air on shipboard, but possibly with well ventilated compartments, this would be obviated. For railway transit this barrel no doubt would have advantages, except in cold weather. Mr. Starr had tried the Cox's Orange Pippin as an export apple, but it was a poor grower and consequently paid less profit than some other varieties. The Newtown Pippin was less and less grown on account of its being so very subject to the scab, which made it unprofitable.

The following were the most profitable varieties to grow in Nova Scotia, *viz :* Gravenstein, Ribston Pippin, (on heavy loam, well drained), Golden Russet, King, Blenheim Orange, Nonpariel (in Annapolis Co.), Baldwin (not always satisfactory).

Mr. Fisk, of Abbotsford, spoke upon the adaptation of Russian fruits to our northern sections. Among those which have so far proved themselves most desirable are the Yellow Transparent, Charlottenthaler, Red Astracan, and Duchess. Of these the Duchess has been very widely cultivated and very popular, but among the later introductions are some which are still hardier and more productive. What is most needed now is a hardy long keeper, of good quality.

Mr. Allan said that many varieties were hardy up to the time of bearing, and after that, on account of exhaustion by bearing, proved tender.

Mr Brodie had found the Yellow Transparent very profitable. He had marketed them for the past two years and they had brought him as much as $5 per barrel. He had marketed them as early as the 28th of July.

Mr. Shepherd said he had not found them to be fit for eating as early as that date.

In reply, Mr. Brodie said that he sold them at that time for cooking purposes.

Mr. Hamilton, of Grenville, Que., had tried the Russian Transparent, and with him it bore the second year after planting, and bore regularly. It was marketable, in his section, after the middle of July, and was a first-rate dessert apple after the tenth of August. He sold it at seventy-five cents a twelve-quart basket in Montreal, and it was reported to be nearly equal to a peach in flavor.

Mr. Jas Fletcher, of the Experimental Farm, gave a very valuable address on injurious insects, and in it he recommended kerosene emulsion for the leaf hopper. He said that he had found the use of sulphur also very effective, applying it in the same way as for mildew ; the fumes were unpleasant to the insect and kept it away. He advised the use of Paris Green for spraying trees, rather than London Purple, and thought that one pound to two hundred gallons of water sufficient for the codling moth ; and one pound to four hundred and fifty gallons of water enough for the curculio of the peach, as the leaves of that tree were exceedingly sensitive to this poison.

Mr. Shutt, chemist of the farm, read a valuable paper of "The composition of Apple Leaves," and showed, from analysis, that wood ashes was a most valuable manure for the apple orchard. He asked the growers if their experience corroborated his theory. Several growers present replied in the affirmative.

The Hon. J. G. Joly, of Quebec, read a very interesting paper on "An easy way of procuring Forest Trees for planting." He said that good trees could be purchased very cheaply from nurseries, but there are many diffi-

culties when the nursery is at a distance. Anyone could furnish himself with fine trees from the woods at a very trifling expense. Of course, trees taken from the forest suffer from the change unless taken up when very small and first cultivated in nursery rows. The best way is to take little seedlings from the woods with a trowel and grow them in the garden or in nursery rows, until they have grown good roots, after which they are fit for planting in the open field. In this way, any farmer with very little expense, may provide himself with an abundant supply of forest trees for windbreaks, shelter belts or ornament.

Mr. R. W. Phipps, of Toronto, took up the subject of "Windbreaks for Fruit Growers," of which he was convinced that there was great benefit. The Norway Spruce was much planted for this purpose; it grew very rapidly, but it was not sufficiently durable. The Canadian White Pine was better suited to the purpose than the Norway Spruce on this account; the White Spruce also promised to be very desirable.

For hedges, the Arbor Vitæ, sometimes called the White Cedar, is excellent for the vicinity of Toronto, near which place he had seen a thicket which was twelve feet wide at the base, and twenty feet high. Where it succeeds there is nothing better for the purpose.

BLACK CURRANT BORER.

SIR,—I am going to plant about four hundred Black Currant Plants, Champion, on black soil. Will that suit Black Currants? Can you say anything about the borers that trouble these bushes? An answer would oblige me very much. JOHN MILLROW, *Orono, Ont.*

Black Currants should succeed well on the soil spoken of. We find that as a rule the currant is more fruitful on heavier soil, providing it is not too heavy to be easily cultivated, and kept fine and porous.

The borer does not affect the black Currant bushes quite as badly as the red and white; but still it does affect them seriously, especially the imported Currant-borer, called by Entomologists, *Ægeria tipuliformis*, and to this species we will devote a few lines.



FIG. 39.

The moth (Fig. 39.) is a pretty wasp-like creature, measuring about three-quarters of an inch from tip to tip of its wings. The color is bluish-black, and the wings are transparent. It may be seen in the month of June, flying about, and seeking suitable places in which to deposit its eggs. These, says Prof. Saunders in his excellent work on "Insects Injurious to Fruits," are laid near the buds, where in a few days they hatch into small larvæ, which eat their way to the centre of the stem, where they burrow up and down, feed-

ing on the pith all through the summer, enlarging the channel as they grow older, until at last they have bored out a hollow several inches in length. When full-grown, the larva (*b* Fig. 40.) is whitish and fleshy, of a cylindrical form, with brown head and legs, and a dark line along the middle on its back. Before changing to a chrysalis, a passage is eaten through the stem, leaving merely the thin outer skin unbroken, thus preparing the way for the escape of the moth.

Within this cavity the larva changes to a chrysalis, (*a* Fig. 40, where both larva and chrysalis are shown magnified.) Early in June the chrysalis wriggles itself forward, and, pushing against the thin skin covering its place of retreat, ruptures it, and then partly thrusts itself out of the opening, when in a short time the moth bursts its prison-house and escapes, soon depositing eggs, from which larvæ are hatched and carry on the work of destruction.

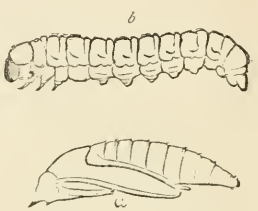


FIG. 40.—CURRANT BORER. *a*, CHRYSALIS. *b*, LARVA.

While this insect chiefly infests the red and white currant, it attacks the black currant also, and occasionally the gooseberry. Where the hollow stems do not break off, indications of the borers may be found in the sickly look of the leaves and the inferior size of the fruit.

The writer has found this insect very troublesome, especially in the red currant bushes, almost every stem of wood over two years old soon putting on a sickly appearance, and, on cutting, is found to be hollowed out by this borer. If we were to follow the tree form of pruning the currant, as practiced in England, our plantations would soon become worthless, but by growing it in bush form, renewing the stems every year or two, and keeping up a constant succession of new growth from the ground as we do with raspberries, no trouble need be apprehended from this enemy. The old and feeble wood should be cut away in spring or fall and burned, and thus the chrysalis is destroyed before it has issued from the stem for further mischief.

The American Currant-borer is not so destructive as the former, and consequently need not be described at length. It belongs to the family of beetles, (*Coleoptera*), while the former belongs to the moths, (*Lepidoptera.*) The larva has much the same habits as the imported borer, but is smaller and has no feet, and several are often found in the same stock. The beetle is shown in Fig. 41, where the left hand drawing shows its natural size, and the right hand one is magnified to show its characteristics. The color is brownish. The same method of warfare that is successful with the one, is also successful with the other.



FIG. 41.

THE EVENING GROSBEAK.

A VERY rare and beautiful bird has in considerable numbers lately visited this part of the country making the trees look gay with their beautiful plumage.

On the authority of Thomas R. Jones, it is called the "Evening Cherry Hawfinch" (*Hesperiphona vespertina*). It inhabits the almost unexplored northern parts of North America and has rarely been found east of the Saskatchewan. A few instances are recorded of their having been seen and a few specimens obtained in Western Onatrio, but they have never before been found so far east as Kingston. Doubtless they have been induced to visit this section through the exceeding mildness of the winter weather.

By the Indians, this bird is called the sugar-bird. The name of "Evening Grosbeak" may have arisen from the popular belief that their song is only heard in the twilight, although in fine weather it may be heard during the day time.

These birds are about seven and a half inches long, not quite so robust as the pine Grosbeak, who is also visiting us just now in large numbers. They seem to be of a social disposition, as they are rarely to be seen except in companies.

The male is a very showy bird, with his body of yellowish olive and greenish yellow, his bright golden underwing and tail coverts, his wings of black and white, golden forehead with line of gold extending back over the eyes, all the various colors being so blended as to greatly enhance the beauty of the whole coat. He has a large strong yellow beak and slender feet.

The dress of the female is not so bright as that of the male, but she is perhaps more prettily marked on the wings and tail.

They seem to feed chiefly on the buds of the pine and spruce trees, but we observe them in search of the seeds of the cones of those trees and we have seen them eating red cedar berries, and they are said to consume the larvæ of the black ant.

Their cry when in search of food is of a melancholy sound, differing much from the sound of any other bird we have ever heard.

This bird we reckon as among the greatest rarity in our collection.

Fine mounted specimens may be seen with Mr. Stratford, taxidermist, Kingston.

Cataraqui, Ont., January 28, 1890. D. NICOL.

PLAIN HINTS ON FRUIT GROWING.—I.

APOLOGY FOR WRITING THEM.

AS we take a glance at the operations of the farming community in general, and estimate the amount of capital, time and attention devoted to the promotion of the several lines of industry which make up the life of the farmer, we are struck with the fact that a very small share of effort is appropriated to the noble occupation of fruit growing, compared to the other branches of general farming. There are a few marked exceptions, it is true, and it is a great relief to the eye and attention of the horticulturist, or one who loves the work to find here and there as he travels through the country, a tastefully laid out fruit garden, and a neatly cared-for orchard, evincing taste and judgment in arrangement, and some evidence of outlay of capital and labor.

But there is no reason why this branch of farm industry should be neglected, and to serve as a stimulus to its furtherance, simple hints and details, set forth in plain language, ought to be freely circulated throughout the length and breadth of the land. Much is done, it is true, through the medium of papers and periodicals, but every farmer cannot be induced to take a paper or magazine devoted to agriculture in general, much less one devoted to horticulture alone. It is to assist and encourage any who are willing to be taught, that the following brief hints are put forth. They are the result of much observation and some practical experience; are written for the novice in the art of fruit growing and *not* for the experienced horticulturist, but if any such see anything in these hints to profit by, the writer has no objection.

And now to my would-be fruit-growing reader, let me say, that the first individual I wish to introduce you to, is the nomadic irrepressible nursery agent. Of these, there are two general classes, *viz:* scamps and honest men. The former will talk you into buying, if he can, every kind of every variety of fruit which is beautifully represented in his canvassing book, as he temptingly displays it to your admiring gaze. He will try to make you believe that each variety is the *best*, whether it is suited to your climatic locality or not. His aim is to *sell*, and he intends to do so *at all hazards*. He has but little regard for your success with the stock he palms off on you, his chief regard is for your signature to his order book; that once obtained, he has got you for the amount to which that signature is appended. But there are *honest* men engaged in selling nursery stock for reliable firms, who will give you fair value for your money, by advising you what to buy suited to your locality, and will give you your stock *true to name*. It is your privilege to discriminate between these two classes of individuals, and with a little care and caution, you can easily do so. The reason why I mention

the nursery agent, is : I am sure much injury has been done to the fruit-growing industry, through the greed of unprincipled agents, and would caution you against such. But a lengthy apology is not necessary to a brief effort, and we will take up what seems next in order to secure success in fruit culture and that is :

PREPARATION OF THE SOIL upon which to grow fruit. One requisite is necessary to the growth of all kinds of fruit, and that is, thorough drainage. If you attempt without it, you will end in failure, and that will discourage you. If you have a piece of sandy loam, with a gravelly subsoil, it may serve to attempt on without much draining, but all soils where clay enters largely in their composition, must be underdrained ultimately, or you need not expect success. While your trees are young, or if you only attempt small fruits, surface drains may do for a time, but it is economy ultimately to underdrain, say two and a half or three feet deep. Many who have desired to grow fruit, have neglected the necessary precautions in the choice and preparation of the ground, have failed and become discouraged. To such we say, try again with proper treatment and you will succeed.

ORDER YOUR TREES for the Spring delivery as a rule. Why? Because you avoid the risk of damage by mice or other accidents, and you can have your ground ready to plant them in on their arrival in the Spring as you unpack and thus save labor. If you do order for theFall delivery, care must be exercised in burying them. Choose a dry ridge, away from any mice harbor, as fence, out-buildings or stumps; dig a trench, say two feet wide and two deep. At one end have a slope of a foot or so, that the first trees you lay will have the top at least a foot above the root, bury that layer with dirt enough to cover well, then two or three more with the same incline, until your stock is done; raise a little ridge over them that you may know just where to dig for them in the Spring, carefully removing the earth first from the last layer you put down, taking up the root first, that you may not mar the body or top. Before planting

PRUNE YOUR TREE WELL. Cut back any long tap roots. This will cause more fibrous or fine roots to grow on the main ones, and these fibrous roots are the true feeders of the tree. Cut off any marred roots if you can do so without lessening the volume of your root too much; and then prune the top back to balance with the root, as the main thought in pruning is to have a healthy balance between the root and top. The secret of growth in your tree, lies in the ample supply of sap which the roots feed out of the ground and send upward in the tree, and if you leave more top than the roots can feed and nourish well, your tree will languish and perhaps die. Do not expect your newly transplanted trees to carry the same top that they have when you receive them from the nurseryman, as if you do, and fail to cut back the top, your tree will not recover the transplanting and become a healthy tree.

DIG THE HOLE FOR YOUR TREE, large enough and deep enough, to let your tree down as near the same depth as it was in the nursery, giving it ample room so that when you set the tree in the hole, there will be no cramped roots, and as you fill in the loose dirt, carefully shake up and down, that the loose dirt may work under and around the roots well and *exclude the air*, as any air left under the roots, will cause them to mould and prevent them feeding the tree with sap. In digging the hole, throw your top soil to one side, and the subsoil to the other, and as you fill in, throw in the top dirt first, and your subsoil last, as the top dirt is usually the richest, and will nourish the roots best. After you have filled the hole with loose dirt and got it well settled around and under the roots, tramp in well with both feet, each side of the tree at the same time, this will firm your tree evenly, then fill loose dirt over your tramping and leave the top loose and it will act as a mulch until further treatment, which I will try to describe later on. Experience has taught me, that these little precautions have well repaid their observance, and you had better take time and set what you can *well* in a day, than to hurry them in the ground as is often done, and lose half your trees through sheer carelessness. I would advise you to choose a slope to the north upon which to set your orchard, if possible, as the frost will remain longer in the ground in the spring, thus preventing too early flow of sap until the cold blasts are past. If you cannot have a north slope, you will do well to throw long manure around your trees any time after the frost sets in, and thus retain it in the spring. You may think these precautions too much trouble, if so, do not spend your money and time attemping to grow fruit. There is no excellence in any line of life, without labor and care in *some way*.

Nepean, Ont. L. FOOTE.

APPLES FOR EXPORT.—II.

ANOTHER thing is the "grading" of the fruit. This should not be overdone but where the quantity of any one variety admits of it, a judicious selection of sizes and colors will be to the advantage of the exporter. Each lot should be distinguished by the brand and so advised on consignment note.

Another point of great importance is tight packing. This doubtless, most growers are aware of, yet we must urge it again, as some either do not know, or do not practice.

We well remember a small lot of apples, sent by a private party from New York to our care. No doubt the fruit must not be crushed (so thought the sender), so when opened, the barrels were but three parts full, and fit for little but the manure heap. Even with consignments of experi-

enced shippers do the hateful slacks appear, which tell so severely on the average returns. We presume that hydraulic presses are the best means for forcing the bottoms of the barrels into their places, but where they are not available, we have no doubt that the ingenuity of the Canadian farmer will devise the means, on being acquainted with the necessity. We now come to our last head on which we shall have little to say.

VARIETY is a wide subject, and one into which many considerations enter with the grower. Having satisfied himself, (and this should be before a tree is planted) of all or most of the varieties suitable to the climate and soil of his farm, and of the cropping qualities of each, which with the CANADIAN HORTICULTURIST in his hands, and the co-operation, so willingly given of its Editor and Staff, he ought with comparative ease to do, his next consideration in choosing his stock of trees is the marketable values and keeping qualities of their produce. There are many varieties which are so well known that we need hardly mention them, such as the "King," "Northern Spy," "Baldwin," "Russet," "Greening," etc. We would urge, however, that of these, *quality* rather than quantity should be aimed, at in their production. For while quality always commands the market, quantity alone often drugs it. The early varieties often reach this country in a soft, sometimes almost "mealy" condition, and many have been the disappointments over the beautiful "Blush Pippin," and kindred varieties.

To grow these crisper and juicier, should therefore be the aim of our American friends. These remarks also apply to that much-prized apple the "Snow," which, when bright, clean and sound, always commands a good price, but how often does it shew far otherwise. The "Ben Davis" deserves more attention, being showy and a fair keeping variety, but it needs flavor. Notwithstanding this defect, however it secures good prices when color and size are right. The "Ribston Pippin," too, does well when samples are fine, as Nova Scotian shippers know to their advantage. Another variety we should like to see more of is the "Spitzenberg," a really good market apple, and one in great demand, when fine as to size and color. The "Seek-no-further" is a good variety also, though apt to be small. Then the "Cranberry Pippin" deserves special mention, with its finely streaked cheek, and agreeable flavor, and good market qualities. Amongst the culinary sorts the "Twenty-ounce Pippin," "Fallawater" and kindred varieties command a good price, when size is right. "Sweets," seldom if ever do well, and should be discarded as indigestible rubbish by the farmers. To our mind there are too many varieties, and whatever the grower, for private use or local consumption, may think and do, we would counsel the produce for export to limit his production to comparatively few, well-tried kinds; believing he will be the gainer thereby.

We must now close our paper conscious of many shortcomings in our handling of so large and important a subject, yet if what we have said helps

one single fellow-traveler o'er the sands of time in his life-battle, its object is gained. The demand for fruit is steadily increasing. Fruit as an article of food, and not merely of luxury is rapidly, growing consumption, bringing its own results.

The field is a wide one, and the intercourse between countries and nations thus engendered cannot fail—where each conscientiously meets each—to bring a measure of prosperity and happiness to all within its pale.

Edinburgh, Scotland, January, 1890. WOOD, ORMEROD & CO.

A FEW GLEANINGS ABOUT MY FAVORITE STRAWBERRY, AND WHAT OTHER GROWERS SAY ABOUT IT.

THAT a constant improvement in this fruit has been going on of late years, and that in some cases so great has been the change as almost to constitute new specimens, is too well known to need more than the mention. Notice the origin of the many magnificent varieties of the improved strawberry. They all owe their present excellence to the improvement wrought in them by intelligent hybridization and cultivation. How long and to what extent this process of improvement can be continued is a question more easily asked than answered: and another, equally important, is whether some of the standard varieties of old-time favorites have in reality degenerated.

I truly believe that the strawberry, with proper management, is as productive as it was thirty years ago. Careful cultivation and the season of blossoming have all to do with the crop. Extreme wet weather during the blossoming is a detriment to the crop. But let us perform our part properly and nature will do her part. Then we will have far less to complain of. Some varieties seem better adapted for some soils than others. Thorough culture and plenty of manure, judiciously applied, will make the road to success.

The following are our own and other people's opinions about the first to ripen and the best of the new strawberries. The queen of strawberries is the *Jessie;* there is no doubt about its being the finest large berry in cultitivation (*Prairie Farmer*). The *Jessie* stands at the head of one hundred varieties as the best large producing kind that is perfect in blossom.

Bubach's No. 5 is big, productive, will pay to raise for near market as well as the *Jessie* (*Farm and Fireside*) *Great American*—This is the finest, large shipping berry we have yet seen, and brings the most money of any we know. *Stayman's No. 1*—We find this an excellent grower and bears a

wonderful lot of berries. The same can be said of *Miami* and *Viola*. These three have the finest roots on strawberries we ever saw (*Am. Farmer and Hort.*)

Which is the coming strawberry? asks the *Prairie Farmer*. We have columns of reports and there is great uninanimity in placing the varieties as follows:

Jessie, Eureka, Mrs. Cleveland, Bubach's No. 5, Warfield No. 2, Haverland, Gandy; these, as reported from Kansas to Canada and from Missouri to Ohio, accord in the main with this verdict. These are the berries for the grower and the shipper.

Granton, Ont., February, 1890. JOHN LITTLE.

THE RELATION OF BEES TO FLOWERS AND FRUIT.—III.

BEES are at once florists, hybridists and fruit producers. The value of their work may be measured by the food value of fruit to man. Let us glance at her work in the production of apples, which from a utilitarian point of view, has no equal among the fruits of this country. The better to understand the part she plays in their production, we must look at the flower. It has a calyx with five lobes; this calyx, when developed, constitutes the edible part of the apple. It has a corolla with five spreading petals. The flower is hermaphrodite, but incapable of fertilizing itself, from the fact that its stigma matures before the anthers. The ovary is inferior and generally presents five cells, with two ovules, which are arrested in development at a very early stage. These cells correspond to the five lobes of the calyx. The apple is, strictly speaking, a fusion of five fruits into one, and demands five distinct fertilizations to make it perfect. The wind doubtless assists in the work of fertilization. So may the moth and other winged creatures, to a limited extent; but the major part of the work devolves upon the bee, which, while flitting from one flower to another, gets dusted completely with pollen, the granules of which are transferred to neighboring blossoms. If three or four only of the five stigmas, get pollen dusted (which is often the case) we will have an imperfect fruit, for nature refuses to do unnecessary work, and will not build up the lobes lying opposite the unimpregnated stigmas. That side of the apple, only, which lies opposite the fertilized stigmas will develop and we will have a fruit with a flat or hollow cheek. The vitality of such apples is not as great, nor their hold upon the parent tree as firm as those fully fertilized; the result is, they rarely withstand a moderate breeze. A moderately disturbing cause will detach them from their stems, and they fall to the ground before they are ripe. This may be proved by picking up a basketful of windfalls in the

early autumn. Upon examination most of these will be found to be hollow-cheeked, imperfectly-formed fruit; cut one of these hollow-cheeked windfalls through the core and an undeveloped shrivelled pip will be found lying opposite the flat undeveloped lobe, while opposite the perfectly formed side of the apple we will get plump seeds; thus proving that imperfect fertilization causes more windfalls than stormy gales. When fruit trees bloom profusely and fail to set fruit, Jack Frost gets blamed for the failure; but he is not always guilty. It may be cold enough not to injure the blossom, but too cold to permit insects to fly freely. If this happens at the critical time a short crop is sure to follow. The extent of our indebtedness to the bee for our apple crop may be determined by putting a piece of gauze over a blossomed branch so as to exclude insects from the flowers. The result will be no fruit, while neighboring branches may be loaded.

The work of the bee, as a producer of fruit, is not confined to the apple, but equally essential to the growth and perfection of raspberries, strawberries and blackberries, as well as to most of our vegetables; indeed, her range of usefulness is co-extensive with the floral world. Mainly, however, to that part of the floral world, rich in its wealth of color, scent, and nectar.

Watching a bee work upon a raspberry, strawberry or blackberry blossom is an interesting study. Alighting upon the solid part, encircled by the petals, she moves round say from right to left—to use a military phrase—she "carries the right shoulder forward" while collecting the tiny specks of nectar lying between the druples, and continues this movement till she makes the circuit of the flower. Observe the result. The left side of the head shoulder and bell gets dusted with pollen, which is carried to the next flower visited, where she again performs her circuitous movement, this time hovering in the *opposite* direction, for she now "carries the right shoulder forward" collecting pollen on the reverse side of the head shoulder and belly, while that on the side now loaded is detached by the springing and jerking of the styles over which she necessarily passes and drops where it is required. So she visits flower after flower, making alternate circuits as she goes. There is more than chance in these peculiar movements—there is design. When we consider that a raspberry requires some fifty or sixty distinct fertilizations, and a strawberry from one to two hundred to insure a perfect fruit, we will understand the importance of the bee's movements while working on the flowers. I am mindful of the fact that other agencies are employed in this work, but to the bee is due most of the credit. This is abundantly evident from the fact that late in the season, when the weather is unpropitious for the bee, and when she is less afield, we frequently meet with berries—one side of which is ripe and luscious, while the other is as hard and green as when the blossom drops. In such cases the developed stigmas were duly pollenated and this determined nutrition to

them. The bee not having completed her circuit, the part unvisited remains hard, green and shrunken.

There would be less necessity for the strawberry-grower to alternate his rows of plants with pistillate kinds if he provided himself with a force of pollen carriers in the shape of a few hives of bees.

This is an exhaustless subject which I need not pursue further. If what I have written serves to insure "the little busy bee" a warmer place in the affections of fruit-growers than she has hitherto enjoyed, my object will be attained.

Owen Sound, February 21, 1890. R. McKNIGHT.

GRAFTING.

THERE are very many apple and pear orchards throughout Ontario which are unprofitable on account of the varieties planted. Many kinds also, once profitable, are so no longer on account of the apple scab, as, for instance, the Fameuse, the Early Harvest, and the Fall Pippin.

Now any man, who has a little skill in the use of tools, can easily transform such trees to kinds that are valuable, by grafting; an art by many looked upon as difficult, and invested with many secrets.

The first thing to do is to secure scions of the kinds wanted, for these must be cut while the buds are yet dormant, and be laid away packed in earth, or in fresh sawdust, until needed. If near a good city market it will pay to grow a few such fancy apples as Red Astracan, Duchess and Wealthy, and scions may be secured at a very small cost, from almost any of the nurserymen who advertise in our columns.

Apples and pears may be grafted much later in the season than stone fruits, for while the latter may be done as early as possible in the Spring, the former need not be done until the last of May, or even the early part of June.

Cleft Grafting is the usual method, and for the smaller limbs it is the best. For this, the tools required are a sharp saw for cutting off the limbs where the graft is to be inserted, a sharp knife to sharpen the scion, a grafting chisel, such as is shown in fig. 41*c*, to open the cleft where it is to be inserted, a mallet to drive the chisel, and a small kettle, with a lamp so fixed in it as to warm the water in which the wax is placed till needed.

Our illustrations will represent the process. The scion, fig. 41*b*, is bevelled equally on both sides, with the outer edge if anything a trifle thicker than the other to ensure firm contact between the cambium layer of the scion and the stock. It is an advantage to have a bud on this edge as shown if the stock is small, one scion may do, as in the engraving; but if

large, it is better to have one on each side, and thus if one fails, the other may succeed.

The stock should be smoothly cut across with the saw, and then split with the grafting chisel, the narrow projection on the back of which is used to open the cleft for the insertion of the graft. All the cuts are then covered with grafting wax and the work is complete.

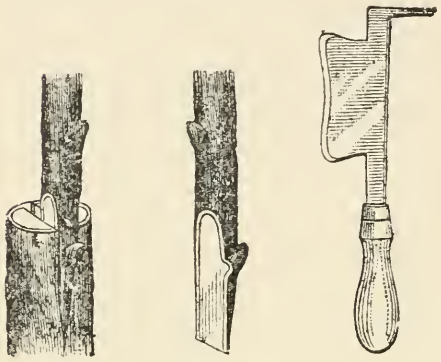


Fig. 41.

Grafting wax may be made in a variety of ways, but in all the ingredients are resin, tallow or linseed oil and beeswax, and it is more or less expensive according to the proportion of beeswax used. A very good recipe is one pint of linseed oil, one pound of beeswax and four pounds of resin. The resin and the beeswax should first be melted together, and the tallow or oil be added, when the whole should be well stirred up together. The mixture is then poured into cold water, and when cooled, worked by hand until ready for use.

A very simple method of grafting has been most successfully practiced by the writer, at Maplehurst, during the past few years, which requires very little skill, few tools and no wax. An illustration showing it appeared in the *Rural New Yorker*, under the name of *Crown Grafting*, which engraving we have copied, because it shows the process so well that very little is needed in the way of description. One advantage of this method is that it may be used on limbs as large as six inches in diameter, and on trees of considerable age, for as the wood is not split the wound is the easier healed.

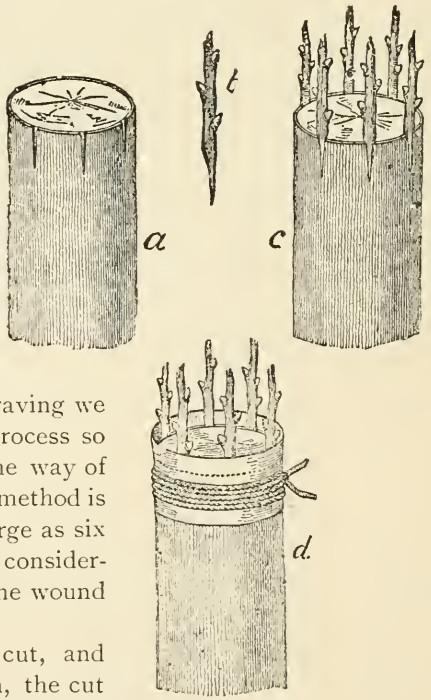


Fig. 42.

In fig. 42 *a*, is shown the stock cut, and prepared for the insertion of the scion, the cut down the bark simply reaching through the wood. At *b*, is a scion, beveled on one side only, which is the side to go next the wood. At *c*, the scions are set, but

only a very large limb would need as many as are here represented; the writer has found two or three, in most instances quite enough, since nearly every one lives. At *d*, is shown the same, wound with stiff manilla paper, and tied firmly with a string. The paper is made to project upwards about half an inch above the cut, and the basin thus formed is filled with mud, which will dry and remain until the wound has begun to heal over.

The grape vine, too, may be easily grafted, and a knowledge of this may transform a profitless vineyard into one of great value. This work must be done early in the season before the buds begin to swell. The scion should be about six inches long, and is inserted very much in the same way as described for cleft-grafting the apple, except that the old vine is cut some three or four inches below the surface of the ground, and that no grafting wax is used. Instead, the cleft stock is tied with a string (Fig. 44), and the earth is carefully heaped about the scion so as to leave but one bud above the surface.

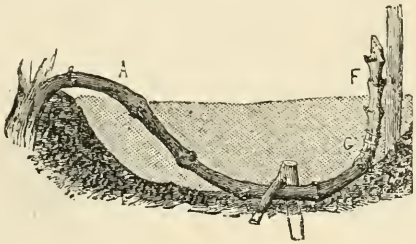


Fig. 43.

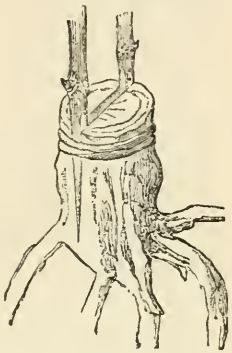


Fig. 44.

In case the old vine is too knotty for cleft-grafting, the work may be accomplished by splice-grafting a smaller branch, as is shown in fig. 43. This is done at a distance of two or three feet from the stump, at *g*, and the grafted branch is then laid down and fastened in place with a peg. The earth is pressed about the scion, leaving a bud above the surface, which is the only one that should be allowed to grow.

Fruits

THE FRUIT POSSIBILITIES OF ONTARIO.



IN the year 1864, I dropped into an orchard in Central New York State to witness some apple packers barrelling fruit for export. A number of the neighboring farmers had turned in to assist in the operations, and, being but an on-looker myself, I made some casual observations about the quality of the fruit, as compared with similar varieties produced in Upper Canada. The operators looked at me with evident surprise, one farmer remarking "I did not know that you could grow apples over there, at all. I thought the chief products of Canada were peas, barley and turnips." This may seem an exaggerated case, yet it serves to show with tolerable correctness the prevailing opinion among our near neighbors at that time, with regard to the possibilities of fruit production in this country. However, that idea has largely passed away with the lapse of years, and with the more general dissemination of Continental information our cousins across the border have come to regard the Canadian apple as a product not to be despised, nor its native soil a land to be estimated alone by its peculiar adaptation for turnip culture.

But much as has been learned in connection with horticulture during the past twenty-five years, and great as has been the progress made in the now important industry of fruit growing, Canadians have not yet fully appreciated the possibilities of their own country as a fruit producing section. This is a great country, take it as a whole, and I have no hesitation in saying that there is not another section of equal extent on the North American Continent to compare with this western peninsula of Ontario, for the production of the hardier fruits. You may fancy that I have suddenly become an enthusiast in this line, but the fact is, I have been impressed with these convictions for some years. My recent observations while attending the farmers' Institutes in several counties north and south, did much to strengthen my former convictions, and I have no doubt the observations of my fellow directors of the Fruit Growers' Association, including the President and Secretary, who were likewise attending these institute meetings in the interests of fruit culture, led them to like conclusions. They should each and all give us the benefit of their observations through the medium of the HORTICULTURIST, a publication which we are now justly proud of.

I may on a future occasion deal less in generalities and give your readers

some of my impressions regarding the fruit possibilities of Elgin, Bruce, Grey and Simcoe counties. In the meantime my firm conviction is that for solidity and crispness in quality, freedom from worms and destroying insects, for beauty in color and smoothness of skin, there is no apple produced in America to surpass that grown in western Ontario.

Mitchell, March 12. T. H. RACE.

"AN ESTIMATE OF APPLES."

IN the February No. of the CANADIAN HORTICULTURIST, page 46, may be found a long quotation from an article published in an American paper, from the pen of Dr. Hoskins, of Vermont, with an introductory note by the Editor.

Why a whole page of this Journal, which is published in the interest of the people of Ontario, should have been given to this article is not apparent, for there is not one single sentence in it that can have the most remote beneficial effect on our people. On the contrary, it can only affect us injuriously; and, it is also calculated to produce an unfavorable impression in the minds of persons in other countries. The whole paragraph, from beginning to end, is unjust to our country, and in part untrue.

That Ben Davis is a leading market apple in the Mississippi valley, or, that it "is indeed entitled to stand first as the great American market apple" is of no special interest to us. If an apple of such inferior quality as the Ben Davis suits the taste of "the great American people" we can only pity "the great American people." It is not good enough for us!

The statement that the Baldwin is a failure north of 43° is not true so far as this province is concerned; and I think if a Canadian should tell the people of the State of New York that Baldwin apples cannot be profitably grown north of a line passing east and west, touching points twelve or fifteen miles south of Utica; five or six miles south of Syracuse; fifteen or twenty miles south of Rochester, and about ten miles south of Lockport, they would certainly think him an ignoramus. The points indicated are nearly on the line of the 43° of N. latitude. The same degree of latitude passing west through Ontario would touch Welland, Cayuga, a point about thirty miles south of Hamilton, and on through London and Sarnia. Will not apple growers throughout central Ontario laugh at the idea of being told that the Baldwin apple cannot be successfully grown north of the line indicated? Yet this is what we are told by this "excellent authority on pomological matters."

We are also told that the discovery of the Wealthy apple "*has extended* profitable apple culture at least 100 miles further north." If this were a fact,

our people would speak of it with pride. But no intelligent Canadian will make such an assertion.

Is it not strange that there are yet American writers who are not aware that Canada is greatly superior to the United States as a fruit-growing country? The lessons learned by so many eminent Americans at the American Pomological Societies' Exhibition at Boston, in 1873, and at the Centennial Exhibition at Philadelphia, in 1876, seems to have been lost on this class of writers.

Lindsay, April, 1890. THOS. BEALL.

APPLE GROWING PAYS.

SOME say last year apples were a drug, and worth nothing. Partly true, although I sold 700 barrels, which netted me $1.40 per barrel, or $980, and my orchard being about six acres, that means $163 per acre. This year you will have no reason to complain of the want of a market. Apples were a failure nearly all over, but like the merchant we must take one year with another, one poor year shouldn't discourage us. Apples are wholesome. You all like them, in fact you must have them. If you don't raise them, you pay your more plucky neighbor to do it for you. They save food, and reduce the doctor's bill, and when we get this reduced to a minimum, if there are any doctors here to-day I can assure them we will willingly by voluntary subscription pay them well, for keeping us well. This year, Mr. Raymond, of Dickinson's Landing, gathered 2,000 bushels of apples, and sold none of them under $1.00 a bushel. Deducting $400 for expenses, he will have a net profit of at least $1,600 from six acres.

Mr. Dempsey, of Trenton, an experienced and extensive orchardist, says we can safely calculate, one year with another, when trees are arrived at their full age, on $100 per acre profit on the orchard.

On the principle that it is not good to have all your eggs in one basket, we would say plant an orchard. Your grain may rust or be destroyed by the fly or other insects; potatoes often fail you; corn sometimes does not ripen. You say there is a great deal of work about an orchard. So there is; but the heaviest part of it comes at a comparatively slack time. There is work, hard and hurried too in ploughing and sowing your wheat land, and in clearing and taking your grain to market.

Aultsville. JOHN CROIL.

PROFITABLE APPLES.—"Wealthy" is the most profitable, with "Duchess" second. At twenty-five cents a bushel "Duchess" will in ten years pay $100 an acre.—*Harvey Fuller, Minn.*

THE "BEN DAVIS" APPLE.

THE *Maine Farmer* has the following to say of this apple:—"A small orchard of eight acres in Greencastle, Ind., is reported to have produced 6,500 bushels of "Ben Davis" apples which sold at sixty cents a bushel. Think of the misery entailed on mankind in the effort to consume that quantity of "Ben Davis" apples! This seems to us to be a short-sighted criticism. The "Ben Davis" is not an apple of very high quality—indeed, unless well-grown in a favorite climate, it is decidely poor for eating uncooked. Nevertheless, it is the leading market apple of the great Mississippi Valley, and notwithstanding the hardiness, early bearing and productive habit of the tree, the market is rarely over-stocked with them. Grown where it is at home, it is large, handsome, an excellent keeper, a good cooking apple, and sells freely, even to the hundreds of thousands who know it well, for eating out of hand. We consider it quite as good for that use as the Roxbury Russett, a variety largely grown in Maine for export.

APPLICATION OF NITRATE OF SODA.

JOSEPH HARRIS gives some valuable hints, based on his own experience with Nitrate of Soda as a fertilizer for fruits and vegetables. He says:—"If we put on half the quantity of ordinary manure and sow broadcast 200 pounds of nitrate of soda per acre in addition, this will be fully equal to a good dressing of the very richest composts, and a great deal cheaper. I say nitrate of soda, because it is not only a cheaper source of nitrogen than sulphate of ammonia or the organic nitrogen in our different fertilizers, but the nitrogen is in just the condition necessary for absorption by the plants. I have used it with great advantage on peaches, strawberries, roses, currants, raspberries, asparagus, celery plants, potatoes, onions, beets, and nearly all garden crops. For several years we could not raise peaches. The leaves curled up and turned yellow in June and frequently fell off, and in a year or two the tree was dead. For two years the trees that have had nitrate have shown little or no symptoms of the disease, if disease it is. The leaves had that dark green, luxuriant color that is the characteristic effect of liberal manuring, and, better than all, we have had fine crops of peaches."

COAL ashes, if not too coarse, is one of the best materials to use in loosening up and making more friable a stiff hard soil. They can also be used to a good advantage as a mulch around the currant bushes, and also around peach trees.

Vegetables

HERRIED THOUGHTS (*frae Mr. Croil*).

DEAR friend, I'd like to say a word,
Anent your pithy letter; *
'Twas quite the sort, for our "CAN. HORT',"
It could'na get a better.

I'll close my een, and think I see
Your well-kept, lovely garden;
And if I haiver † for a while
You'll no be mad; guid Maister Croil,
But gie old Gran your pardon.

I'll tak my staff and daunder ‡ west,
For nature age is grand to me;
Trellised bowers, and bonny flowers
My heart aye dances when I see!

I love the sons o' Adam's craft;
A fear nought stalwart member,
Just such as Croil, give him tools and soil,
He'd raise the Witch o' Endor!
And make her grow, if she will or no,
A lovely Oleander.

Ah! here is beans, dwarf German beans,
All else is a delusion;
Gie beans to weans! they make strong banes,
I'll grow them in profusion.

There's cabbage, that ne'er fails to head,
They may be soon or late;
"Empress" I'l! try, I'll tell you why;
I hate an empty pate.

Here's Imperial beets, of pure blue blood;
Royal, so I see;
I'll sow *royal* seed, I shall indeed,
Republic tho' I be.

Ah lovely celery for compound!
Celery! there's enough!
Graceful as a lady's fan,
Crisp and tender, pale and wan,
As e'er sprung frae the Sheugh ‖
Celery, says Dr. Paine, will "build the forces o' the brain,"
(Even tho' we are born wi' nane!)

* See page 10. † Haiver, speak nonsense. ‡ Daunder, walk leisurely. ‖ Sheugh, a ditch.

The peas! I almost had forgot;
(But I'll not turn like Mrs. Lot).
There's empty pods; but gobbled marrows,
Gobbled by dare-deevil sparrows.

I ll thraw * them craps; why should I not?
I may be wrang, as I often am,
But since ye ate my marrowfats
And built a nest in my scare crow's vest,
I'm advised to gie ye "rough on rats."

All winter I hae fill'd your wames, †
Gied a warm cheemlie for your hames;
How could ye see me sair forfoughten, ‡
Driving ye frae my peas sae often?

Tae tak your lives I wadna ettle, ||
Tae peck your wale § o' worms and settle; ¶
What! refuse sic chuffie worms as these?
A mensfu ** treat to a braw Chineese;
Trowth! I canna say anither word,
Or tulizie here wi' sic a bird.

—GRANDMA GOWAN.

NOTES ON VEGETABLE GARDENING IN MIDDLESEX COUNTY.—I.

1889 HAS gone, and with it many failures, both to the fruit grower and the farmer, which may help both to learn some very important lessons for the future, and to be prepared for any kind of weather that may come, whether it be extremes of either wet or dry, for we have had our share of both this last year. January was mostly very mild, but it closed up with snow, and then in February we got our winter, with one or two of the coldest days ever felt here. Then Spring came in cold and dry, followed in May by very severe frosts, which injured most of the fruit in this part. This was followed by shower after shower of rain, until every creek and river was taxed to its utmost to carry away the surplus water, often doing much damage to public roads, and also to garden crops and small fruits generally. This completely prevented the keeping of them clean, for the ground seldom got dry enough to be fit to work the hoe in it. Then came one of the driest harvests that we have had for some years, some days with the thermometer away up to 97°, and even as high as 102° in the shade, and now we have the warmest winter that I ever have seen. One year ago last Spring, I obtained a package of (*Bisse's Hybridized*) potato

* Thraw, twist. † Wame, the belly. ‡ Forfoughten, fatigue. || Ettle, try. § Wale, choice. ¶ Settle become quiet. ** Mensfu, abundant.

seed, and from that I set out 310 plants, but, owing to some weeks of very dry weather which followed, I only saved 130 kinds. Some of them gave promise of being excellent yielders, but this last year has been so unfavorable to the potato crop, that they have to be further tested, so as to find what will be their merits or faults. I find for a potato that stands hardships best, that the Pearl of Savoy is the best of many kinds that we have yet tried. In Beans, I find the Dwarf Mont d'Or, one of the best for cooking green, as it comes in very early. For early cabbage, Extra Early Jersey Wakefield, and for late, Improved Drumhead Savoy are very good, with Winningstadt for a splendid midseason variety. I have tried most of the new kinds of Cauliflower, and find that, taking one season with another, Early Paris fills the bill very well, and as for lettuce, Premium Cabbage is as good as any. Beets show a great difference in quality and shape, according to the soil that they are planted in. Carrots seem to grow too large with me, but the Early Shorthorn is much the best. In corn, I have experimented to some extent, always preferring the earliest, and I am now selecting choice plants and ears from the Northern Pedigree Sweet, as a garden variety, and for field, Angel of Midnight as yellow, and a large white variety that we have grown for years ourselves, always selecting the best. I grow but few cucumbers, and I prefer the White Spine variety. Egg Plant, if well attended, and planted in a good warm soil, will well repay anyone for their trouble; Improved Long Purple is far the best. Melons were a complete failure this year, and is a vegetable that should not be used too freely. Onions. Every garden should possess a good supply of the English Multiplier, which is the best for early, and the Mammoth Silver King for late. Peas is one of our best garden luxuries; Alaska is one of the earliest, and McLean's Little Gem, Horsford's Market Garden, Prince of Wales, or Stratagem, do well to follow each other in sucession as I give them here. I have grown several kinds of pepper, and am now back to the Long Red again. I did not grow any pumpkins, squashes, radishes, salsify or garden turnips this last year, but we had the richest tomatoes we ever had, and I find none better than the Acme. I have had, some years, as many as eight different kinds on trial, and I found that the Acme was one of the best, taking one season with another. The soil has a great deal to do with the variety, and often in the same garden, where two kinds of soil exist, it is interesting to note the effects on the same varieties.

East Williams, Ont. J. M. W.



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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NOTES AND COMMENTS.

THE BUBACH STRAWBERRY.—This variety is highly spoken of in the Report of the Indiana Horticultural Society for 1888 as being very productive and its berries uniformly large, of good flavor and fine appearance. The three best of the recently introduced varieties, which have been tested, are claimed to be the Logan, Bubach and Jessie. All are said to be strong growers and comparatively free from blight. The Logan is mentioned as being equal to the Crescent in productiveness. The largest berry was had from the Jessie; it was seven inches in circumference. In plant, berry and vigorous growth the Jessie was thought to be superior to the Sharpless.

PLANTING STRAWBERRIES.—In the same Report we find early spring planting recommended as by all means more likely to insure success than at any other season. Rather close planting is also recommended; Cumberland, Jessie and Sharpless as close as eight inches apart.

LUCRETIA DEWBERRY.—Mr. W. B. Walker, of Greenfield, read a paper before the same Society on the Lucretia Dewberry. He has been growing it since 1884 and has found it to be easily cultivated and very profitable. He sets them six and seven feet apart and cultivates chiefly with the plough. In size, the berries average from large to very large and he considers it one of the handsomest and best blackberries grown. On account of its trailing habit, he uses a mulch of straw to keep the fruit from lying on the ground. The yield is from two to three quarts per hill.

HARDY PEACHES.—At the late meeting of the New York Horticultural Society the following varieties of peaches were spoken of as the most hardy, viz: the Early Rivers, Hill's Chili and Hine's Surprise. These can nearly always be relied upon for a crop. The writer has also found the Early Purple and the Hale's Early to be much more certain of a crop than the Early Crawford or the Old Mixon. It is to be regretted some of the very finest varieties are also the most tender. The prospect, however, for this season, in the Niagara district, is unusually encouraging; for all varieties are well laden with fruit buds which have come through the winter without injury.

THE FIRST TASMANIAN APPLES were expected to arrive in England about the 21st of April. It was at one time thought that these would compete with our late shipments in the spring, and so make it necessary for us to put our crop forward earlier than the date mentioned. But the freight from so distant a country is too high to allow them to drive

our apples from the markets of Great Britain, even allowing that the quality and quantity from that small island were to compare favorably with the Canadian. The freight charges are high from Canada to England, but from Tasmania it is at the exhorbitant rate of 5s per bushel.

Just now, however, there is no need for us to export our long keepers, for the prices at home are unprecedently high, choice Russets and Spy bringing $4.00 to $5.00 in Toronto, and have even brought as much as $7.00 per barrel in the city of Montreal, for extra fine samples.

USEFUL TOOLS.

AMONG all the tools for pruning trees there are none so useful as the large pruning knife and the fine-toothed saw. In pruning his three-year-old peach trees this spring the knife has been the only instrument needed by the writer. He has found indeed that he can prune out the dead wood and shorten in the young growth much more quickly with the knife than with any other instrument.



FIG. 45.

By climbing a light step-ladder one can grasp several of the small boughs in one hand and with the other lop them off, and the work is soon done. With older trees, of course, the knife is out of the question, and with them the writer has found no instrument equal to the Water's tree pruner (see fig. 45), for with it one can stand upon the ground and shorten the branches very rapidly. This is a very important operation with the peach tree, for if it is allowed to grow its own way, as is advocated by some growers, the new growth will all come at the extremities of the branches, and the tree die of premature old age owing to the long distance through barren and sickly old wood, which the sap must travel to reach the growing parts.

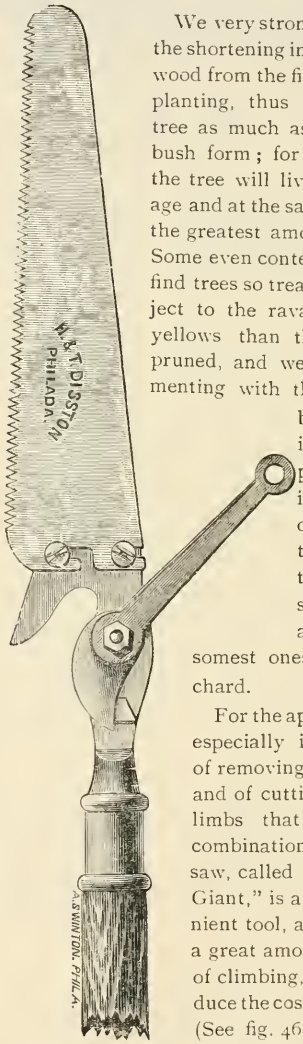


FIG. 46

We very strongly advocate the shortening in of the peach wood from the first year after planting, thus keeping the tree as much as possible in bush form; for in this way the tree will live to greater age and at the same time give the greatest amount of fruit. Some even contend that they find trees so treated less subject to the ravages of the yellows than those not so pruned, and we are experimenting with this in view; but whether it will accomplish so desirable an end or not, certain it is that the trees well shortened in are the handsomest ones in the orchard.

For the apple orchard, especially in the work of removing the suckers and of cutting out small limbs that cross, the combination pruner and saw, called the "Little Giant," is a very convenient tool, and will save a great amount of labor of climbing, and thus reduce the cost of the work. (See fig. 46.) By kindness of Messrs. Johnson & Stokes we are able to give our reader engravings of two of these instruments.

Question Drawer

GRAFTING SEEDLING APPLES.

29. SIR,—I have a lot of seedling apples; should they be grafted in the ground or above, and is the wood of last year's growth old enough to use as scions?—T.A.G.

You may graft below on the root, or on the trunk above the ground. The former place is usual with seedlings, for then the splice is protected by the earth.

Nurserymen usually pull up seedling apple trees at the age of one or two years, or as soon as they reach a diameter of about three-eighths of an inch, pack them in sawdust in the Fall, and leave them in the cellar until they are ready to graft them. This is done in a grafting shop, indoors, and they are then packed away again in the same way until planting out time. It is rather late now to take them up, so, unless you splice-graft them at the surface of the ground, you will need to wait till Fall. Wood of one year's growth is just the right age to use for scions.

HARDINESS OF THE PRINCESS LOUISE.

30. SIR,—Please say in the next HORTICULTURIST, if the apple tree Princess Louise is hardy enough for our latitude, forty-five and a half: I do not find a word about its hardiness in your journal.—L. PASCHE, *Bryson Que.*

We do not know. It was to find out this that it was placed upon the list for distribution. It originated at Maplehurst, on the north side of what is known as the Niagara Escarpment, and is a seedling of the Fameuse; so that it is presumed to be as hardy as that variety.

SPRAYING OUTFITS.

31. SIR,—Please say what kind of a spraying outfit you would recommend?—A SUBSCRIBER.

IN reply to a good many inquiries about outfits for spraying trees, we here give a cut furnished us by Messrs. Johnson & Stokes of Philadelphia, representing the perfection outfit, which is recommended as being the best hand-power for the purpose, and capable of spraying one hundred trees per hour. This pump is fitted with ten feet of discharge hose and a graduating spray nozzle, the above being attached to the pump at the spout "A". At the aperture "B," is attached

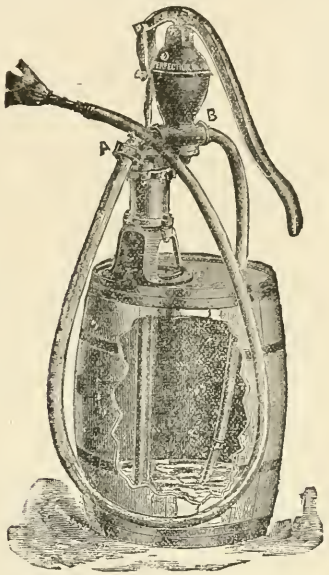


FIG. 47.

three feet of return hose, at the lower end of which is connected a discharge pipe, so that at every stroke of the pump, a small part of the liquid is re-discharged into the tank near the bottom of the suction pipe, which keeps the water and poison well mixed. The pump has a three-inch cylinder, and is furnished with an iron suction pipe, ready to mount on a barrel. This outfit complete without the barrel, can be had for ten dollars.

GRAFTING THE RUSSIAN APRICOT

32. SIR,—Can a Russian apricot be grafted on a plum stock?—A.C., *Brantford.*

Stone fruits are not usually propagated

by grafting, as in most cases the operation will prove a failure, but they may be successfully budded in the Summer-time, as soon as sufficiently matured buds can be secured. The apricot is usually budded either on peach or on plum stock, and for hardiness, of course, the latter is much to be preferred.

SPRING OR FALL PLANTING.

33. I see a great difference of opinion regarding Spring and Fall planting. I have been planting in both Spring and Fall, for the last ten years, and always get the most satisfaction from Fall planting.--T. A. GATRIX, *Coldwater*.

Apple trees, especially hardy kinds, will usually do well planted in the Fall on well drained soil, and the earth well firmed down about the roots. But, under less favorable circumstances, it is safer to plant them in the Spring, in Ontario.

THE IDAHO PEAR.

34. SIR,—Is the climate of Idaho severe enough to ensure the success of the Idaho pear here?—H. EVANS, *Napanee, Ont.*

Although the latitude of Lewiston, Idaho, near which the Idaho pear originated is about forty-six and a-half degrees north, yet of course that means a warmer climate than the same in Ontario, which would be very nearly as far north as Quebec City. The thermometer, however, at Lewiston sometimes goes down to thirty degrees, *Fr.*, which is, we presume, as low as you get it at Napanee, and, therefore, no doubt the Idaho will succeed with you.

SEEDING DOWN THE ORCHARD.

35. SIR,—Does a vigorous orchard fifteen years old produce more fruit if manured and cultivated, or if seeded down and top-dressed?

The chief object in cultivating and manuring an apple orchard is to keep it in a vigorous condition of growth, and if that desired vigor can be maintained by seeding down and top-dressing, which in many cases it can be for two or three years at a time, it would be an advantage to do so. Indeed an orchard of that age growing vigorously, might by such treatment be thrown into good bearing in consequence of the slight check of wood growth which would result.

PLANTING IN POOR SOIL.

36. SIR,—If trees must be planted in poor soil, would it do to mix ashes or other fertilizer with it?—H.E.

We have been accustomed to use ashes only as top-dressing, applying them in May or June, just when the rains will take down the potash to the growing roots, while the remaining elements will become gradually incorporated with the soil.

MAKING A LABYRINTH.

37. SIR,—I would like to know how the Honey Locust would answer for hedges for a Labyrinth, or what would you think would be best for that purpose? Our Council has appointed me to superintend the work done in the park, and I would like to make a Labyrinth if the cost would not be too much. I was thinking about cedar, planted very close together; in England they use Box, but that would be out of the question in this country. I think it would be a great acquisition to a park, to have such a place in it, but I think it is not often adopted in this country.—WM. DOWNS, *Stratford*.

Reply by Mr. W. E. Wellington, Toronto.

1st. According to my mind, a Labyrinth should be planted with trees that will grow above the height of a person, or, in other words, so that you cannot see over the hedge. Of course it could be planted with low flowering shrubs with good effect. For a Labyrinth grown dense that cannot be seen over, either Spruce or Arb or Vitae is certainly the best, and about the only thing that can be planted in this country. For good effect for a low Labyrinth, nothing would equal *Spirea Van Houtti* for strong growth, hardiness and handsome appearance when in flower, as I think it excels anything that can be put out in that line. Japan Quince would do, and the Tartarian Honeysuckles and Wiegeleas are sometimes used.

FERTILIZING AN APPLE ORCHARD.

38. SIR,—What would be the cheapest and best means of fertilizing land, of a light gravelly nature in which apple trees were planted two years ago, and where stable manure and wood ashes cannot be obtained in large quantities? The object being to induce good growth of wood, and to bring land into high state of fertility.—B., *Yarmouth, N.S.*

Reply by Prof. J. H. Panton, Ontario Agricultural College, Guelph.

This question is a somewhat difficult one to answer satisfactorily.

In the absence of stable manure, which among other things is so valuable for the nitrogen it contains, and of ashes, the source of potash, one is at a loss to name substitutes which will take their place economically. I certainly would advise to secure all of these possible, before resorting to artificial fertilizers. Even leached ashes are valuable, inasmuch that they have twenty per cent. of the potash still, and all the phosphoric acid. In the absence of the stable manure and ashes, the nitrogen of the one might to some degree be made up in the use of Sodium nitrate, Guano, or Ammonium Sulphate; these are ranked among artificial manures and are comparatively expensive. They should be applied only when the plant is able to take them up, as they are very soluble and soon pass away. The potash may be obtained in Potassium Chloride, another fertilizer, or in a mineral called "Kainit," which also contains considerable quantities of potash. I would suggest to the person putting this question, that all the urine from the animals kept be secured, as it is exceedingly rich in nitrogen, and may be of great value mixed in the manure.

GOOSEBERRIES DROPPING.

39. SIR,—What can be done to prevent gooseberries from dropping before they are ripe?—SUBSCRIBER. *Almira, Ont.*

Reply by A. Morton, Wingham.

I have noticed dropping off of two-thirds grown gooseberries. Examination has satisfied me that many of them are affected by a green worm which may, by the casual observer, pass unnoticed, but many are apparently sound and without mark, as stated. I have not extensively investigated the cause, but think it but an exemplification of the "survival of the fittest" in the struggle for existence. It is always greatest in heavily fruited branches and bushes, and considering the sufficiently large crops my bushes bear till maturity. This dropping off is not regarded as a calamity. I know of no remedy better than fertilizing with nitrates and potash will produce better crops My difficulty has been the other way, having to thin out for No. 1 fruit.

THE SALOME APPLE.

40. SIR,—Has the Salome apple been tested in Canada? Please give description. —H. E., *Napanee.*

We have not fruited this apple, and know of no one who has except Mr. Wellington, who has fruited it for two years at Fonthill, and says he finds it a handsome apple of fair quality. He considers it quite hardy. The fruit is described as of medium size, roundish, conical; pale yellow, slightly shaded with red, splashed and striped with dark red; flesh, tender, juicy, mild sub-acid. January to June.

GRAFTING THE CHERRY.

41. SIR,—Can cherries be root-grafted the same as apples. If so, what kind of roots are the best for the purpose, black, red or wild natives, will roots from old trees do, or would seedling be best?—A SUBSCRIBER, *Almira, Ont.*

Neither cherries, nor any other stone fruits, succeed well when root-grafted; the usual method of propagating varieties of these is by budding.

SCOTT'S WINTER APPLE.

42. SIR,—Will Scott's Winter apple average as large as the Snow?—H. E., *Napanee.*

Reply by R. W. Shepherd Jr, Montreal.

Yes, about as large as "Snow" or Fameuse grown under ordinary circumstances, but not as large as Fameuse grown here.

The "Scott's Winter" is undoubtedly a hardy tree, and bears abundantly every alternate year. Fruit keeps well into April; quality only "good"; an excellent cooking apple.

THE GOLDEN WHITE.

43. SIR,—I send you, per Express, one box containing scions of the Golden White apple, No. 978; also a few scions tied apart of an apple originated in this vicinity. It is as large as St. Lawrence, keeps better than Fameuse and good quality in the Fall. It has a bloom like a Decarie apple.—R. BRODIE. ST. HENRY, *Montreal, Que. March* 20, 1890.

We hope to have this very valuable Russian apple propagated for distribution next Spring.—EDITOR.

Open Letters

MORE PARTICULARS ABOUT MR. CHAS. GIBB.

SIR,—We received yesterday a letter from British Consul at Cairo, giving some particulars of poor Chas. Gibb's death. He contracted "La Grippe" at Aden, which developed into double pneumonia. He died at 3.30 p.m., on March 8th. The remains were interred at 3.30 p.m., on 10th, in the British Protestant cemetery, the mournful rite being attended by several friends. The funeral, in accordance with the expressed wish of the deceased, was a plain one. Poor fellow, we miss him greatly.—Yours faithfully R. W. SHEPHERD, JR.

THE HILBORN RASPBERRY.

I see by Mr. Lyon's article, he says he might use Gregg for market instead of Hilborn. He has not had them in large enough quantities to test for market; in fact, has none at present, and he has written me for all I could send him to get a start again. On my old farm at Arkona I had an acre of them planted, also an acre of Gregg by the side of them, and a quantity of Souhegan, Tyler and Mammoth Cluster, all planted at the same time and have received the same care. The Mammoth Clusters failed and were dug out. The Hilborn begins to ripen about three to five days later than Tyler, and quite a nice picking is gathered every year after the Greggs are done, and they produce about one quarter more quarts than Gregg. They, of course, will not stand shipping to as great a distance as Gregg. They are better, however, in this respect than Tyler.

We have started an Essex County Horticultural Society. One feature of our E. Co. H. Society is an Experimental Ground for testing new fruits. The County Council have made a small grant of money for the use of the Society. They voted that it be used for the purchase of new fruits and handed over to me for trial. I shall therefore start an experimental plot this Spring. Shall be glad to have anything new or promising you can send me. Think I will be able to send you some new promising fruits in the Autumn, if you care for them.—Yours very truly, W. W. HILBORN.

NARCISSUS.

ARISE from thy slumber, lovely Narcissus,
The south winds now carol over thy bed;
Old Sol is waiting to greet thee with kisses,
You have nothing to fear now; Winter has fled.

The fearless wee Crocuses—Paradise immigrants!
Have arrived on our borders with God's message of peace,
And you, too, sweet Narcissy, must try to be diligent,
Improving Time's lessons, which never shall cease.

Your Sleepy old Sisters, Rose and Rose Mary
Have promised to visit me early in June,
I never have found the dear beauties contrary,
But timely arrayed in their queenly costume.

So bonnie Narcissus, hasten your toilet,
I weary to see you, don't tarry so long;
Bring with you your incense, sweet odorous Pilot!
And waft my old soul back to childhood and home.

GRANDMA GOWAN.

For The Canadian Horticulturist.



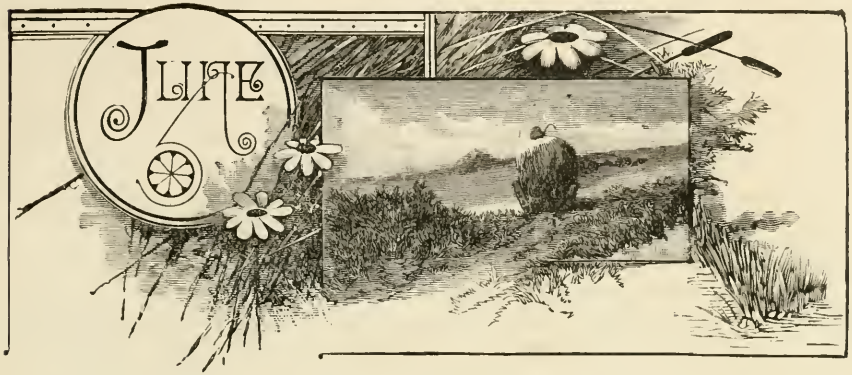
MR. CHARLES GIBB, OF ABBOTSFORD, QUE.

(Late Vice-President of the Montreal Horticultural Society).

THE

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SOME PROMINENT CANADIAN HORTICULTURISTS—X.

THE LATE MR. CHARLES GIBB, OF ABBOTSFORD, QUE.



LITTLE did we think, on the 5th of July last, when we received that brief card to say "Good-bye" from Mr. Gibb, which was published in last year's volume, page 237, that it conveyed so much more meaning than was intended. His journey was indeed a longer one than he had mapped out.

There is probably no man in Canada, whose loss could be so deeply felt in horticultural circles, as that of the subject of this sketch. From all sides have come letters expressive of the high esteem in which he was held, both personally and on account of his work. Mr. John Croil says, "Few men did more for the advancement of fruit culture. His work so well begun, will live after him." Mr. R. W. Shepherd, of Montreal, says, "I feel as if I had lost a dear and intimate friend." Dr. Hoskins of Vermont, writes, "If you get the details about my dear friend Gibb's journey and death I hope you will print them as fully as possible. I loved him as a brother. No man was doing more for his country and ours than he." Possessed of wealth and great intellectual ability, he devoted all to the benefit of Canadian Horticulture, and to his

industry in this respect, the local horticultural societies of the Province of Quebec, the Montreal Horticultural Society and the Dominion Horticultural Society are all lasting monuments.

Mr. John Craig, Horticulturist of the Experimental Farm, Ottawa, who was a personal friend of Mr. Gibb's, writes in this connection as follows:

"It may not be generally known that Mr. Gibb's last efforts were directly in the interests of and for the advancement of Canadian Horticulture. The journey, which may be looked upon as the indirect cause of his death, was one that he had in contemplation for months previous to the time of starting, which was in July, 1889. After spending some time in British Columbia, he took steamer to Japan, where he studied the flora very thoroughly, especially of the northern part, then proceeded to the mountainous regions of China. Next we find him in India, Ceylon, and lastly Cairo. After reaching this point he and his friends looked forward to a speedy reunion. From various points along the line of travel he forwarded packets of seeds, and scions of many forest and fruit trees which specially commended themselves to his notice. There is now at the Experimental Farm, Ottawa, a valuable and interesting collection of plants being propagated from this stock. Among these are fruits which may prove valuable additions to our lists for southern Ontario. There is little doubt that exposure, coupled with severe physical strain through uncivilized lands and over mountain roads, weakened and finally prostrated a frame never vigorous. These last tokens of his affectionate regard for Canadian Horticulture will be faithfully and lovingly cared for at the Experimental Farm, and will, when distributed among the people for whom he labored, be a monument more fitting than granite or marble, and one which shall illumine the annals of Horticulture while the earth shall bring forth the fruits which he so much loved."

Mr. Charles Gibb was born at Montreal on the 30th of June, 1846. He received his early education at Bishop's College, Lennoxville, and went from there to McGill College, Montreal, where he graduated B.A., at the age of nineteen. The application necessary to complete a college course successfully at so early an age, not only injured his eyesight, but also much impaired his health, and he was told by physicians that he had only a few years, perhaps only a few months to live, and they advised him to seek recuperation in foreign travel. This he did, going abroad in company with his uncle, Mr. J. J. Gibb, of Como. This first trip was of two or three years' duration, and embraced visits to Egypt, the Holy Land, and afterwards Switzerland and Europe generally.

On his return he engaged in the cultivation of fruit, in the State of Pennsylvania, no doubt because he rightly considered it one of the most healthful, as well as one of the most interesting departments of agriculture. The climate of Pennsylvania not agreeing with him, he returned to Canada, and purchased the farm on the slope of the Yamaska mountain, at Abbottsford,

so well known to us all of late years, on account of the interesting experiments with Russian and other hardy fruits which he has carried out there.

In 1873 he made repeated trips to the United States, studying the pomology of that country, bringing everything worthy of trial to his farm, not merely in sufficient quantities to stock his own farm, but also enough to make free distributions of trees and plants to his neighbors.

In 1882 Mr. Gibb, in company with Prof. Budd of the Iowa Agricultural College, went to Russia in quest of the most hardy fruits which might be expected to endure the extremes of temperature to which the northern parts of Canada and the United States are subject. Prof. Budd had already made a large collection of hardy fruits at Ames, but so little was definitely known of the names and values of the various Russian fruits that it seemed necessary that some one should go to Russia charged with this errand. Speaking of it afterward Mr. Gibb, with his characteristic modesty, said, "Northern Horticulturists were looking with great hopes to Russian fruits. The work could not be allowed to rest. Some one must go to Russia; Mr. Budd and I went." On pages 192-230 of our report for 1883, may be seen a full report of this journey, written by Mr. Gibb, who, it is well worth noting, took this costly journey at his own expense. This trip was followed by importations of trees and seeds which were distributed to the members of the different Fruit Growers Associations of the Province of Quebec, and seeds of which were sent to the Experimental Farm, Ottawa, and to the Botanic Garden at Montreal.

In 1887 he went alone over the same ground, to verify his previous work, visiting in addition, Norway, Sweden and Denmark. Other trips were made in the interests of Horticulture to the North-West, British Columbia, California, etc., and in July, 1889, he left for this last one around the world, taking in especially Japan, China, India, and other countries.

Freighted with much valuable information, he was on his way home when his death occured on the 8th of March last, in Egypt. As has already been stated, he contracted La Grippe at Aden, which developed into double pneumonia. His remains were interred in the British Protestant Cemetery at Cairo, on the 10th, the funeral being attended by several friends. It was in accordance with his extreme modesty, by which he was especially characterized in life, that he made the request that his funeral would be conducted in a plain unostentatious manner.

Cut off in the prime of life, his life work apparently only fairly begun, he has yet left many works which will be a lasting monument to his memory. The following list, as well as many of the notes used in compiling this sketch, has been furnished us by Mr. John Craig, viz: "Notes on the Trees and Shrubs of Europe," describing those best adapted to Canadian culture: "Russian Fruits," the best description extant of Russian apples imported by the United States Department of Agriculture in

1870, made up from personal notes taken as seen growing in different orchards, with translated description from the Russian, annexed; "Hardy Fruits for the Cold North," a select descriptive list of the former with fuller descriptions; "Nomenclature of Russian Apples," an arduous task of translating and rendering into euphonious English unpronounceable Russian names, also throwing out synonyms.

Mr. Gibb's mind was very receptive, his opportunities great and memory retentive so that he was generally looked upon as a bureau of information which he was always glad to impart; and in consequence his correspondence was very heavy. He was very much interested in Natural History and contributed many specimens to the Redpath Museum, and he was also a heavy donor in the establishment of the Art Gallery at Montreal. Since it was so fully in accord with the experimental work in which he had already been so largely engaged, it is not surprising that he was one of the first and most active workers in the establishment of the Experimental Farm at Ottawa, in connection with Prof. Saunders.

The engraving which forms the frontispiece to this number represents Mr. Gibb as he was about twelve years ago, and is made from the latest photograph taken. It does not by any means do him justice, but is the best that can be had.

PLAIN HINTS ON FRUIT GROWING.—II.

PRUNING.

THERE are three distinct pleas for faithful pruning once a year of all fruit trees and shrubbery, in our orchards and fruit gardens. The first is, *for the health and vigor of the tree or shrub;* the second is, *for its shapely appearance;* the third is, *for the size and quality of fruit.* The neglect of pruning is soon manifest, in the premature decay of the tree, by the top becoming too great a burden for the root to carry, by the trunk becoming rough barked and dull in appearance, by interlacing branches running at random through the top, shutting out the sun's rays, giving the tree an untidy appearance and a speaking evidence of neglect. On approaching a tree to prune it, the condition it presents will tell of the power the root has to nourish and sustain the top and should be the main guide as to how much of the top must be removed. If the bark of the tree is smooth and lively looking, the limbs green and bright, just enough of the top may be cut away to give the tree a shapely appearance and open out the inside of the top for the sun's rays to act upon the fruit, to give it size, quality and a bright appearance.

A wash of lime or strong lye from hardwood ashes after pruning, will add much to the health and beauty of the tree. If a tough sod has been allowed to grow around the roots of the trees, it ought to be removed at once and chip or long stable manure, plentifully substituted, mixed with hardwood ashes moderately, to prevent mice from working around the trees.

Pruning and otherwise caring for the tree or shrub, not only pays, but gets you into sympathy with its condition and prospects, and depend upon it, the more interest you take in the welfare of your orchard and garden, the greater will be your financial returns and the more your knowledge and experience will expand, and you be concerned for the success of others as well as your own. A right minded horticulturist will not keep his knowledge to himself for the sake of monopoly, but will joyfully impart anything that he has found valuable, that others may be benefited. Next in importance to spring pruning, to fit the tree for the seasons growth, is the care in the fall to carry them safely through the winter.

If the season has been favorable for much new growth on the tree, it will need special protection to carry it through. If you are in a northern climate, you have need to give more attention to your protection and require more patience in the management of your trees generally. Impatience to see favorable results and lack of interest and care to produce them, are fatal enemies to the welfare of the orchard and garden. I may add, in pruning, try to have a leading centre to your tree and do not allow your tree to fork or send off too large low branches. If taken in time, forks and one-sided heavy limbs can be prevented. It is the evenly balanced tree that bears the heaviest load of fruit without injury. A fork in your tree splits down when heavily loaded and a large one-sided limb either breaks down or drags your tree one-sided and ill-shaped.

Be sure to stake your young trees as soon as you set them out. Staking prevents the heavy winds from loosening your tree at the roots, thus preventing drying out, and in the winter, when your trees may be loaded with ice, saves them from injury. It also prevents a bias to the south-east from prevailing north-west winds and is a safeguard generally. A strip of leather one inch wide and eight or ten inches long, will last a long time, nailed to the top of your stake, just below the lower branches of the tree. The stake can be driven within four inches of the tree without injury to it. This might seem quite a task for a large orchard, but still it will *pay* in more ways than one. My young trees were heavily loaded with ice last winter, and some of them wrapped with twisted straw, and had they not been staked, under the force of the heavy winds, they must have been ruined. I will here say that my Russian apricots and Lombard plums, came through the winter finely in their twisted straw jackets. They had also a mound of long manure around them, to keep in the frost late, to prevent early flow

of sap. *It pays to take care of your trees!* As the foregoing hints are applicable to standard trees, I will say a few words about

SMALL FRUITS

before closing this paper. Small fruits may be profitably grown in northern localities, where the larger varieties will fail. Hence the argument for setting forth their treatment, and commending them especially to the novice in the work of fruit growing. You may with impunity venture on small fruits, when you might be timid about apples, pears, plums, cherries, etc. Besides an acre of ground will afford ample scope for your efforts in growing small fruits, while the risk in outlay for stock is not so great by far as for large varieties, raspberries, blackberries, currants, gooseberries and strawberries may be grown with success, with but little previous experience. Obtain a nurseryman's catalogue and look over the varieties, and if he has reputation for reliability, you can depend upon his descriptions of sorts and make your selections therefrom. Stock purchased, to be delivered by mail or express, can be had cheaper than from travelling agents, and as a rule is fully as safe a plan as the other. Choose your ground with reference to drainage and protection if possible, and lay out your fruit garden regularly, both for convenience and beauty. Plant your raspberries, blackberries, currants and gooseberries in rows six feet apart and four feet apart in the row. This will leave a privilege for cultivating and hoeing, a work that well pays in growing small fruits. If you do not care for laying out too much money at first, you can get a dozen or two of several best varieties and take time to propagate from them, thereby gaining by experience of your own, and risking less at first. I would advise this plan as a rule, unless you have plenty of money to risk. If you make a wise choice of older grown varieties, you will be surprised how fair a start you can get with an outlay of fifty or seventy-five dollars. Raspberries and blackberries propagate very fast, and cuttings from currants and gooseberries, if cut in the fall and kept in a damp place without freezing, will be ready to set in the spring. In setting cuttings, put at least two buds under ground with one or two above, and if your location is inclined to moisture you may expect a fair share of success. Strawberries do best set early in the spring as they get well rooted and winter through with greater degree of success. Some fall planted froze out with me the past winter in spite my efforts to save them by careful covering. But as this paper is growing tedious I will defer until next time further hints.

Nepean, Ont. L. FOOTE.

GRAFTING THE STONE FRUITS.

I NOTICE this general statement made in answer to a query in the *Question Drawer* of the May number, neither cherries nor any other stone fruits succeed well when root grafted. This does not agree with our experience; we root graft the cherry, plum and apricot as successfully as we do the apple or pear. Now for three years in succession our stand of cherry and plum root grafts has been better than with the apple. We put in the scion at the crown of the seedling by the process known as side-grafting, and wax with the ordinary liquid grafting fluid.

The main secret of success though, is not found in the method of grafting, but in keeping the buds of the scions dormant until the grafts are set in nursery. This we accomplish by keeping the cave or dirt cellar in which they are stored very cold, by opening for an hour or two in the night and keeping it closed up tightly during the day. We often keep the top of the moss in which the grafts are tightly packed, frozen for weeks at a time during the latter part of winter and early spring. If the buds are started when planted in the cold earth of early spring they are apt to rot, if planted down to the top bud as we plant them.

In our climate crown grafting is far more certain than budding, and as we are often compelled to use tender stocks for the cherry the deeply planted grafts soon root from the scion. Even if this fails to take place the tender root is so deeply set that it rarely is injured.

Agricultural College, Ames, Io. J. L. BUDD.

TREATMENT OF APPLE SCAB.

THE alarming extent to which fungus, known as *fusicladium dendriticum* has spread throughout the country, increasing yearly in degree of injury resultant, makes us who are engaged in fruit culture most anxious to know whether any remedy is likely to prove completely successful or not. Reference has been made in these pages to the use of hyposulphite of soda, in the proportion of one pound to ten gallons of water, and applied two or three times during the month of May, and the degree of success attending it at the New York Experiment Station, by Dr. Arthur.

In the *Journal of Mycology*, Vol. 5, page 210, published by the U.S. Department of Agriculture, an account of some further careful experiments, is carefully noted. Several fungicides were used by two careful experimenters: Prof. Taft, of the College Farm at Lansing, Mich., and Prof. Goff, of

Experiment Station, at Ithaca, Wisconsin, under the direction of the Department. The season being a favorable one for the growth of the fungus, a fair test was made.

Several fungicides were tried, of which the chief and most useful in the order named were eau celeste, ammoniacal solution of copper carbonate, and hyposulphite of soda. The varieties treated were Northern Spy and Fameuse, because these had shown themselves specially subject to the scab. The copper carbonate was prepared thus:—three ounces of copper carbonate dissolved in one quart of ammonia, and the whole diluted to twenty-two gallons; but twenty-eight gallons is advised instead of twenty-two. The *eau celeste* was prepared thus:—two pounds copper sulphate dissolved, mix and dilute to twenty-two gallons, adding one-and-one-half pints of ammonia before using.

The application was repeated seven times, beginning about May 18th, at an expense, including labor, of from about twenty-five to sixty cents per tree, the *eau celeste* being the most expensive.

As a result, the scab was very noticeably less on the trees sprayed with copper solution. The trees sprayed with *eau celeste* gave sixty-eight per cent. of fruit entirely free from scab, while those untreated gave only twelve per cent. Nearly as good results were obtained with the ammoniacal copper carbonate, and both were superior to the hyposulphite.

We quote the closing paragraphs in full:—"Besides the tabulated results there were others which are of great importance, but can not be estimated in exact figures. A scabby apple is much smaller than a healthy one, and in many cases, while the apples could not be placed in class one, the scab had so been held in check that the fruit had obtained a greater size than it otherwise would. Professor Taft gives the difference in weight between perfect and scabby fruits as varying from ·036 to ·002 pounds for each apple, and says the scabby apples are ten per cent. smaller than the perfect ones, making a difference of nearly a bushel per tree in size alone, besides the fact that the apples that are badly scabbed are unmarketable. From the combined effect of the two causes," he says, "we lost on some trees a barrel of apples."

The cost of the chemicals and labor expended varied but slightly in the two cases, but both gentlemen were obliged to buy chemicals in small amounts, and the cost per tree would be greatly lessened by treating a large orchard and buying materials in quantity. Prof. Taft used large trees requiring three gallons each for each application, while Prof. Goff used three gallons for the two trees, but Prof. Goff estimates the labor higher than Prof. Taft, and this makes the figures nearly alike. Both these estimates, however, are for seven applications. In an average season, and with the copper solutions, four or at most five applications probably will be sufficient. It is likely that in a large orchard with average-sized trees, when the

chemicals were purchased by the quantity, the expense could be reduced nearly one-half. The expense of the ammoniacal solution in particular would be reduced by purchasing the copper carbonate instead of preparing it from the sulphate.

In Mr. Goff's calculations the cost for labor in making the treatment amounts to more than half the expense.

It seems probable that it would be profitable to make the first application earlier than was done this year, and there is no reason why this application, or the next, should not be combined with London Purple or some other insecticide, and the tree protected from insects and fungus at the same time. Mr. Hatch closes his report thus :—

"What we now need is to determine the correct amount of the copper mixture to use, the times best suited to its application, and what combinations to make with insecticides, and a new era in fruit culture will be inaugurated."

INSECTICIDES.

IN Bulletin 58, of the Michigan Experiment Station, Prof. Cook gives a review of the various insecticides, from which we draw the following matter as being of service at this season. For bugs, plant and scale lice, the *kerosene emulsion* is highly valued as it kills by contact. His way of preparing it is as follows: "Mix one quart of soft soap or one quarter of hard soap with one or two quarts of boiling water, and as soon as the soap is all dissolved, stir in while hot one pint of kerosene oil; stir violently until permanently mixed. When ready to use this, stir in enough water to make fifteen pints in all."

The *Persian Insect Powder* may be sifted on the plants or applied mixed with water, a heaping tablespoonful to two gallons of the liquid. This also kills by contact and not by being eaten, and is recommended because it is non-poisonous to man and the higher animals. Nothing is better than this for destroying the cabbage caterpillar, pear and cherry tree slugs and plant lice, but for the latter the kerosene emulsion is more satisfactory.

A *tobacco decoction* is also valuable. This may be made from refuse powder, or stems, and a pound of the tobacco to two or three gallons of water, makes a very effective decoction. Turn boiling water on to the tobacco; when cool strain out the tobacco, and the decoction is ready for use. This is very effective against the striped flea-beetle, and the cucumber flea-beetle.

Carbolic Acid Emulsion. This is highly recommended as a valuable compound for the fruit grower. It is made the same as the kerosene emul-

sion only stronger. One part of carbolic acid to from five to seven parts of the soap solution being the proper strength. This is recommended as the best protection against the bark lice and the apple tree borer. The trunks of the trees are thoroughly scrubbed with this emulsion about the first week in June for the bark lice, and about the middle of June to protect them from the borer.

TO DESTROY INJURIOUS INSECTS.

FIVE pounds of potash; five pounds of lard dissolved in five gallons of boiling water; one peck of quicklime shaken in five gallons of boiling water; while hot, mix with the potash and lard. This mixture can be kept in an old barrel for any length of time. To use, add to each gallon two gallons of boiling water, and while hot apply to the trunk and large limbs with an old broom. If this mixture is applied to trees while young, and used year after year, the bark of the trees will be kept as smooth as glass and all bark lice and borers destroyed.—*Insect Life.*

OLD HEDGES can easily be disposed of by cutting down now as close to the ground as possible, leaving them in a narrow compact row over the roots. After new growth has started in Spring, set fire to the brush, and burn it. This will kill the plants, and a year later the roots will be rotted enough to be torn out easily with the plow.—*Gardener Jo.*

Fruits

THE PROSPECTS FOR PEACHES, PEARS, CHERRIES AND STRAWBERRIES.

JUDGING from the show of fruit blossoms up to the date of writing, the 23rd of May, this will be one of the most abundant fruit seasons ever known in Ontario. Every variety is as full of bloom as it can possibly be. Fruit growers in the Niagara district are hopefully expecting a heavy crop of peaches, the bloom having shown itself very freely about the first of May; but the peach is a most tender fruit and there are many chances for disappointment between now and harvest time. Already they have met with a set-back on account of a sharp frost which occured about the beginning of the second week in May, and as a result a large number of the fruit blossoms have dropped, especially from the old trees, leaving a very small proportion to develop into fruit. On the young and vigorous growing trees, however, there will be an abundance of fruit unless some other mishap occurs. The pear trees are perfectly white with bloom, but of course it is too soon to say what proportion of these will set. Some growers predict that an over abundant bloom is often followed by a small crop, and this season will certainly test the truth of that statement. Cherry trees have shed their petals and are setting a heavy crop. The only fruit crop that seems likely to be short is the strawberry. This is owing to the unusually mild winter and the lack of snow as protection from the evil effects of freezing and thawing. Those who were careful enough to mulch their strawberry plantations with straw in the Autumn, are now rejoicing in the prospect of an abundant crop, but only a few have done this, and where it has been neglected, the plants have been badly heaved out by the winter, and the plantations almost wholly ruined. This is true not only of the Niagara district but of a large part of southern Ontario. We have received a few reports of the preseut prospects from various sections, some of which we will quote here, hoping in another month to be able to give still more reliable estimates.

MR. A. MCD. ALLAN, of Goderich, in the County of Huron, writes: "We never had a finer promise of a large fruit harvest in all kinds than there is at present. The trees are in a splendid condition to produce a large crop, and if Jack Frost keeps away, this district will easily have 150,000 barrels of apples alone, for export. The pear, plum and cherry crop promises just as well in proportion, and the peach trees are ready to burst forth in a perfect cover of bloom. In some few instances where growers were ignorant enough to plant on low or undrained land, I hear of damage to strawberry vines, but generally speaking, the crop is safe."

MR. T. H. RACE, of Mitchell, in the County of Perth, writes: "Judging from the present show of blossom buds, the promise was never better in this section for an abundant crop of apples, plums, pears and cherries. Small fruits do not promise so well, with the exception perhaps of currants and gooseberries. Strawberries were badly killed in the vine during the winter; there was no covering of snow to protect them, and the continued open weather with alternate frosts and thawings played havoc with them. The Gregg and Cuthbert raspberries have also suffered badly from the sudden climatic changes, and will not yield an average crop."

MR. N. J. CLINTON, of Windsor, in the County of Essex, writes: "Pears show favorably for a good average crop, although not quite up to last year. The old French trees have shown few blossoms; this seems to be their off year."

MR. FRED. MITCHELL, of Innerkip, in the County of Oxford, writes: "By present appearances, strawberries will not be more than half a crop. During the past winter so little snow fell that exposure weakened all and even altogether destroyed many fields. Cherries are not grown on account of the black knot. Pears are loaded with blossoms."

MR. SIMON ROY, of Berlin, in the County of Waterloo, writes: "The crop of apples, pears and plums in this county will probably be abundant, provided that no such calamity as that experienced on the 28th of May of last season occurs. The present season is about fourteen days later than last year, consequently we may escape. As an almost anticipated consequence on the almost total destruction of both apples and plums last year, we may be almost exempt from those insect pests which are almost uncontrollable, by leaving no chance for their perpetuation. During my experience of some forty years, more or less, in Canada, connected with horticultural matters, I have invariably found that in seasons of early fine weather, very indifferent fruit crops were produced. I have noticed particularly the abundance of blossom buds on the various varieties of pear trees, which are really wonderful, and if one pear is produced in twenty blossoms, the crop will be large enough. Cherry trees are largely destroyed with the black knot in this county, but what few trees are left seem to be well loaded with bloom. The past open winter has been disastrous to the strawberry plantations, and, from what I can learn, the crop of fruit will be only about one third. The alternate freezing and thawing of the winter has made sad havoc to plantations not protected by straw. Raspberries in exposed situations have been injured. Many of the popular Cuthbert canes are killed to the ground. The newer varieties such as Golden Queen and Marlboro' appear safe."

MR. GEORGE BUNBURY, of Oakville, in the county of Halton, writes: "Pears in this section are crammed with blossoms. Cherry trees are also well filled. Strawberry plantations are fair to good in some places. Raspberries promise

badly, for some reason or other the canes are dead in large quantities, especially in old established Cuthbert plantations."

MR. JOHN CROIL, of Aultsville, in the county of Stormont, writes: "Strawberries here are completely demoralized from La Grippe of the frost, their growers generally *badly begripped too*. The usual covering of straw failing the addition of snow, has ruined our prospects for the season, and many of our growers seem to be discouraged. We fail to see why. In forty years' experience in strawberry culture, we have not had such a tale to tell, and our advice is, when every one is running; you walk. Replant your beds, they are likely to do in the future as well as they have done in the past, and the inevitable scarcity of our favorite fruit this year will enhance its value in coming ones. In our cold north it would be premature to predict the prospects for pears, cherries and plums, but we may say that in our section pears have always been unremunerative, except in the hands of the few persistent growers, who have had small returns from Bartlett, Flemish Beauty and Clapp's Favorite. Cherries have failed us for years, and plums nearly so.

MR. D. NICHOL of Cataraqui, in the county of Frontenac, writes: "Strawberries were badly injured by the winter. There being very little snow, plants were more exposed than usual. The bloom upon apple, pear and cherry trees is more abundant than usual, although about ten days later than last year."

MR P. E. BUCKE, of Ottawa, writes: "Fruit prospects were never better in the Ottawa Valley than this spring. The only fruit which appears to have suffered is the Raspberry where not laid down, the snow fall last winter having been comparatively light, though we had uninterrupted sleighing from the 27th of November to the 20th of March. Pond's seedling and Glass's seedling, two of our hardiest cultivated plums, are showing a wonderful abundance of bloom. No pears can be grown here."

MR. THOS. BEALL of Lindsay, in the county of Victoria, writes: "The prospects for pears is the very best, but strawberries are nearly all winter killed.

From all these and other reports it is evident that while most fruit trees promise a great abundance and low prices must be expected in consequence, yet strawberries will be an unusually short crop, and good plantations will yield unusual profits.

FRUIT AS MEDICINE.

IT is very seldom that fruit is taken as a preventive or cure for illness or disease, yet the value of many varieties in cases of slight ailments, and in some instances of serious indisposition, is indisputable, and advantage might well be taken of this fact by those engaged in the fruit trade to impress it upon the public more strongly. Of the various fruits—English and foreign

—grapes stand first from a medicinal point of view. They are both purifying and nutritious. Peaches also are most hygienic, especially if taken at breakfast time, whilst nothing is more palatable and wholesome than this fruit. An orange eaten before breakfast will, to a great extent, prevent or cure dyspepsia, and the juice as well as that of lemons is extremely useful in cases of fever. Stewed apples might with advantage replace many salts, powders, or pills given to patients by physicians. A taste for tomatoes, although not natural, is easily acquired, and indulgence in this, to many unpleasant, fruit, has a good effect in liver and gastric complaints. Currants, raspberries, strawberries, figs, and many other kinds of fruit are equally purifying to the system, if taken regularly and frequently but not spasmodically. We might continue to cite examples to a consider able length, but the preceding will be sufficient to indicate the value of this class of produce as health producers and supporters.

Besides the almost universal use of the orange as a dessert, the sweet variety abounding as it does in citric acid, possesses in a high degree anti-scorbutic properties. The enormous consumption of this fruit among all classes must have a very benefical effect on the health of the population.

The late influenza epidemic undoubtedly gave a temporary spurt to the orange retail trade. As is well known, the medical profession strongly recommended the fruit as a means of alleviating, if not actually staving off that distressing complaint. This fact was endorsed by the analyst of this publication, and then made the most of by the metropolitan retailers, who, especially in the poorer districts, exhibited large placards with the quoted medical opinion respecting the anti-influenza virtues of the orange.

The bitter orange is a valuable stomachic, and the astringent properties contained in the rind make this fruit an excellent tonic. Orange wine is made in great quantities from the Bigarade.—*Fruit Trade Journal.*

AN ESTIMATE OF APPLES.

I HAVE have read Dr. Hoskins article entitled "Estimate of Apples," and thoroughly agree with him in his remarks regarding Ben Davis and Baldwin. The Ben Davis is hardy, a great cropper, and although of inferior quality, I believe pays very well in the English market. It can be grown successfully where the Baldwin would not have the slightest chance of success. I do not agree with the doctor's estimate regarding the paying qualities of an orchard, but I think the Doctor is a good authority on hardy varieties, as he tests all the new varieties, and is located in a locality where only hardy kinds will succeed. You must know that a larger percentage of

trees give a profitable crop in the Niagara district, in Prince Edward's Co., and also along the lake shore of Northumberland, Durham and Ontario, than his estimate.

Toronto. W. E. WELLINGTON.

I see nothing to find fault with in that portion of Doctor Hoskin's letter which you have published *verbatim*. I should require some explanation of the term "common varieties" in the introductory remarks, before giving an opinion. The introductory remarks and the latter part of the worthy Doctor's letter seem to clash. You note he says: "The discovery of this variety (the Wealthy), has extended *profitable apple culture* at least one hundred miles further north."

The Fameuse is undoubtedly a "common variety" if by that term you mean a variety "commonly grown" on the island of Montreal. Yet no crop of potatoes grown on that island will compare, in financial returns, for one moment with the crop of Fameuse or Snow apples that could be grown in the same ground. When "City Property" is given up to growing Fameuse apples it must undoubtedly be a good paying investment otherwise Montreal orchardists would not grow them.

Renfrew. A. A. WRIGHT.

With regard to the quotation on p. 46 of our journal, it struck me at the time, that the remarks in the first few lines were not what I understood to represent the facts in apple culture, but I do not see that it is either wrong or improper to insert the doctor's statement. In fact even if he is wrong, it is proper to note his utterances, as being the opinion of one whose opinion is based on experience. The reiteration of commonly accepted statements of facts does not further information so much as the assertion of that which appears erroneous; the latter stimulates independent investigation and puts people thinking.

Wingham. J. A. MORTON.

MR. BEALL'S ESTIMATE OF APPLES*.

IN speaking of the *relative* value of importance and usefulness of fruit trees, full force should be given to the adjective. In the cold north, iron-clad hardiness of tree is essential, and until we have a wider choice we shall have to take and make the best of sorts that otherwis we should reject. Take *Tetofsky*, for instance; the tree is iron-clad, healthy, productive and the fruit early, handsome and though not soft fleshed is mildly sub-acid, and quite eatable for want of a better. The

* See Report 1880, p. 4; and p. 146 of this volume.

Yellow Transparent is a week or so earlier, soft-fleshed, better flavor, and about equally productive. I much prefer it to Tetofsky for *my own eating*, but I have many trees and positively cannot say which sells the best or brings the most money. Chiefly, however, I value Tetofsky as a stock upon which to top work varieties like Prolific Sweeting, which are late in coming to fall bearing. On Tetofsky, Prolific Sweeting bears as soon and as freely as the Tetofsky itself, while root-grafted trees of Prolific Sweeting, 17 years set, do not produce as many apples as those on Tetofsky six years grafted. The commercial importance of such a stock is very great. If it will do for the Bethel what it has done for the Prolific Sweeting it will make it by far our most valuable winter apple. I have now a lot of Tetofskys which I shall plant out this spring for the purpose of making the trial. The only fault of the Bethel is that it is as long as the Spy in becoming a paying tree. In reference to the keeping qualities of the Wealthy if it is gathered early, and at once placed in a deep cool cellar with well-managed ventilation, I find it to keep in perfect condition until spring. Last year at this time I sent to Mr. R. W. Shepherd of Montreal, a box of Wealthy's in prime order. They were kept in my house cellar with no extra care, and not a cent's worth of extra labor. Simple attention to the above named conditions is all that is needed. By reversing them I can have them ripe and mellow in October.

Mr. Beall seems to think that what he does not know is not worth knowing; at least, his condemnation of apples because little known * (to him), looks that way. If he will consult Mr. Gibb, Mr. Shepherd or Mr. Wright, he will obtain Canadian experience of considerable length regarding *Scotts Winter*, which is highly favorable. High dessert quality has never been claimed for it, but as a vigorous and productive tree, more hardy than Wealthy, with superior culinary quality and remarkable long keeping it occupies a place not otherwise filled in the cold north.

As to *McMahon's White* I expressed no judgment on it until I had fruited it for several years, and then I set out every tree of it I had in my nursery, because it gives a succession to the Duchess much needed. As to *Duchess of Oldenburgh*, it is ridiculous to speak of it as a summer apple here. It does not get its full growth until September, and by gathering as soon as well colored, and placing in a cool cellar, it keeps well into October. But of course in a warmer climate it is earlier.

Magog Red Streak, though it seems to be much liked by a good many and though I myself was the first to propagate it, is for me so completely surpassed and replaced by the Wealthy, that I have no further use for it. Still it has merits and stands the winters with me quite as well as Wealthy. My family regard it as our best pie apple. The *Switzer* is the nearest perfection in tree and fruit of any apple I have, its only "out" being a

* See Report F.G.A. 89, page 4.

tendency to drop its fruit, though not before it begins to be merchantable. Trees in sod do not seem to show this fault. In quality it is almost equal to Fameuse, while the size is larger, the fruit free from spot, and the tree a first-class iron-clad, and a wonderfully free and elegant grower. It accompanies McMahon's White in season, but is of finest dessert quality, while McMahon's is only fair. It is, however, a large apple and equally fair, though with only a slight blush. There is more money in Switzer than in McMahon, I think, though both are "bonanzas."

Regarding 43° as the limit of the Baldwin northward, as a commercial apple. I should (if I did not) have limited the remark to New England, as I am well aware that it is grown as far north as this, or farther, in Michigan. It is grown, but with difficulty and on unhealthy trees, on our Vermont islands in Lake Champlain. But in this north-eastern part of Vermont I have never seen a Baldwin tree live to be old enough to bear an apple. In Maine its profitable production is limited to the extreme south-western towns. None are grown in New Hampshire or Vermont, north of White River Junction, in the Connecticut Valley, one hundred and four miles south of here.

As you are aware, I have never attempted to give a list for Ontario, and it would seem to me that for practical usefulness there should be a division into districts in some of which any apple would succeed, while in others only extra hardy and iron-clad kinds could be profitably planted.

Red Astrachan, Haas, Colvert, Yellow Bellflower, Northern Spy, Canada Red, Tolman Sweet, Golden Russet all fail here; while St. Lawrence, though the tree stands, bears very lightly. Alexander and Cellini are hardy and productive, but are nearly destroyed by the Codlin worm, which seems to have a special fondness for these varieties. Fameuse Sucree and McIntosh Red are nearly as hardy as Wealthy, but unprofitable from spotting and cracking by fungi. Nearly all the true Russians are hardy, thrifty and productive, but time is needed to select the best from among them. Longfield is good and productive but not better than Switzer while it is an inferior tree, with smaller and much less handsome fruit. Antonovka will make a good early winter commercial apple, of fair but not high quality. Titovka (as I have it) is a large coarse-fleshed, mellow, pleasant flavored, red striped apple, that will only a little exceed Oldenburgh in season. Zolotoreff is of same season, handsome and good, but too strongly ribbed,

Newport, Vermont. T. H. HOSKINS.

A PROMINENT horticulturist states that by placing tomato leaves around the trunks of trees and also by sprinkling roses and cabbages with a decoction prepared by steeping tomato leaves in water, insects did not disturb them. This is worthy a trial.

THE HUBBARDSTON APPLE.

I THINK that a great amount of patience must be required to fill such a responsible office as that of Editor of our CANADIAN HORTICULTURIST, on account of the varied and conflicting experiences in the cultivation of the the different varieties of fruits, plants and flowers had by your subscribers. My experience, with regard to the subject of your last colored engraving representing the Hubbardston Apple, has been very unfavorable, and, if my experience is to be relied upon, some points there made need qualifying. You say, in the outset, that "this apple is less known and cultivated in our orchards than its merits would warrant," and farther on you qualify this by saying, guardedly, "in those sections in which it has been found to succeed." This if rightly understood means volumes, inasmuch as in my estimate of it I would as soon plant the wild thornapple, either for home use or for market. You say that Mr. Wright buys his apples from Prince Edward county, and infer therefore that it thrives well here. This must be a mistake. My experience with fifty trees planted in 1865, turned out so badly that they nearly all died in less than ten years. I then top-grafted them on Tolman Sweet, Golden Sweet, Yellow Siberian Crab and seedling stock with very little more satisfaction. To day I have scarcely a vestige of this apple in my orchard, and during these ten years I can safely say I have not put up ten barrels all told. My opinion is that in our country there are not twenty-five barrels of it grown in a year, and consequently it is passing out of cultivation.

There is a variety called the Nonsuch which is hardy, a large deep basined flatish apple striped with red, three fourths of the size of a King in general, but somewhat coarse and not as long a keeper. This apple I have worked quite freely during the past few years, while the Hubbardston is very tender and should be cultivated where peaches will thrive. A good peach locality may grow them nicely.

I would like to hear from Mr. Wright of Renfrew, giving a description of the apples which he has been getting from this county as Hubbardstons, and saying from whom they were purchased. I will take much trouble to see a bearing orchard of them.

Bloomfield, P.E. Co. J. P. WILLIAMS.

NOTE BY EDITOR.—We are glad to receive this criticism from Mr. Williams. One of the objects for which this journal is published is to compare the experiences of growers in various parts of Ontario. It is very desirable to know just in what localities any apple will succeed, and in what kind of soil. We should be very sorry indeed if anyone were led by anything in these pages to plant apples unsuited to their climate, and we hope to hear from Mr. Wright as to whether there could be any mistake in his having received shipments of the Hubbardston Apple from Prince Edward Co. In the county list of apples published in the Report of 1884, we find the Hubbardston marked five for

hardiness in the counties of Grey, Bruce and Huron, counties surely exposed to as low temperatures as Prince Edward Co. In most of these it is also ranked as vigorous and productive. A grower in the county of Middlesex, however, only gives it three for hardiness, remarking that it does best on a good, deep, strong soil and especially on limestone.

We hope to hear from others with regard to this apple.

LOW PRICES OF FRUIT: CAUSE AND REMEDY.

AS the time for the shipping of fruit approaches, it is well to regard carefully those principles which will insure us an honorable reputation and the highest possible prices. The following remarks by a New York commission merchant in the *American Garden* are worthy of repetition: "Cultivation of fruit in this country has attained such proportions that, if we are to believe the statements of some growers, it is no longer profitable. If this is true we should investigate the cause, and then like sensible men apply the remedy. The cause of this depression in prices, I think, is the production of such large quantities of poor fruit, which must be sold for a price less than the cost of production. Thousands of quarts of berries, tons of unripe grapes, thousands of barrels of apples, pears and quinces which are not fit for consumption, are sent to market with the idea of getting some price for them. Growers make a great mistake in shipping unripe grapes to market, for when the market is stocked with other varieties of ripe fruit there is but little demand for the ripe grapes, and none for the unripe. The continued shipping of the unripe grapes to market has the effect of depressing the prices for a time after the ripe grapes replace the unripe. If such varieties as the Champion, Hartford and Elvira were exterminated from our vineyards and only the later varieties cultivated and allowed to ripen before being picked, the grower would realize a greater profit from his vineyard than he now does; or if those sour varieties were permitted to ripen it would add to their value, as then they might be sold for wine. But now each grower vies with the other to get his grapes on the market first, and the consequence is that the returns from the sale of the fruit do not pay for the labor expended upon it. Premature, wormy and imperfect apples, pears, etc., are an objectionable feature in the trade, and the continued shipping of these fruits have the same effect upon the market as in the case of unripe grapes. It would unquestionably be far better to keep this fruit at home and send to market only the ripe and perfect kinds. Not only would better prices be obtained, but the chance of having the fruit seized by the agents of the Board of Health would be reduced to a minimum. Each year these agents seize large quantities of unripe fruit and there is no redress for the shipper.

During the strawberry season there are many dealers from other cities whose business is to ship to their home customers, and I have frequently heard these men say that "although there are so many berries in market, we cannot procure enough desirable stock to fill our orders." The self-evident remedy is to plant less acres, to devote more care to securing fruit of a better quality, and cease shipping premature and unripe fruit to market. Producers should remember that the taste of consumers is becoming cultivated and now the demand is for the best fruits. Each year it is more difficult for dealers to dispose of the immense quantities of inferior grades. To become a successful cultivator one needs brains, energy, capital and a large amount of patience and perseverance, in order to overcome the many obstacles to be met with in his business. Having succeeded in learning how to produce good fruit, the next item is to learn how to market it. One important feature is the selection of proper packages for each variety; for frequently the form of a package is objectionable to the purchasers, and one who aims at success in fruit culture must meet the wants of purchasers. Of late years the gift packages have become so popular that many refuse to buy fruit in packages on which a deposit is required. Choice fruits sells better in small gift packages than in larger ones. Some growers ship their poor fruit in these small packages, thinking that if the size of the package effects the price secured for good fruit it will also help the price of the poor stuff; but that is a mistake. Another important item is to establish a reputation for giving honest weight and measure; and to secure this reputation, the grower must give the packing of the fruit his personal attention, for some employees think it folly to be so particular, and imagine they know how to do it as well as the employer, and do not hesitate to deceive the purchaser, thinking that their employer will not find it out. The result is that the brand is ruined without the knowledge of the owner. Possibly the owner may wonder why his fruit does not sell for its accustomed price, and the receiver, supposing that the owner is aware of the change in packing, says nothing when reporting the sales. Again, the grower is apt to overlook the placing of the fruit wagon in charge of a trusty driver in transit to the station. A careless person can do much harm by driving over rough places without any regard to the tender character of the fruit. I would suggest to the shippers of tender fruit that they follow their drivers occasionally to the station and examine the fruit before it leaves for market. I know from personal experience that a large amount is injured in this way and the loss attributed to transportation companies.

Let the shipper raise the covers of his berry crates and he will soon learn why dealers complain of the poor condition in which the fruit arrives. In some instances he will see berry baskets resting at an angle of 45 degrees, with one-third of the fruit gone, or he may see all of the fruit in the top tier of baskets so bruised by jolting as to be worthless. It would be wiser for

the dealer to throw this tier away than to sell the whole at the value represented by the top. An essential point for the dealer to consider is the selection of a commission merchant to sell his fruit. This being done, he will do well to inform the merchant of the varieties and quantity of each fruit he proposes shipping and to obtain all the information he can upon the best methods of preparing and shipping the fruit ; also, the kind of packages to be used in order to place the fruit upon the market to the best advantage. The dealer is generally much better informed on those points than the shipper, who would frequently save money if he would occasionally consult with the merchant. Every shipper should be on the most friendly terms with his dealer, as their interests are usually mutual. No shipper should hesitate to ask for the information he needs, or take offence when the dealer points out defects in packages or methods of packing. I consider it a part of his duty to note and inform his patrons of these deficiences, yet I have frequently known persons to get angry at their dealers for mentioning these items, and quit shipping to them. One of the great mistakes shippers make is to keep their dealers in ignorance of the quantity and varieties they have to send, or when they intend shipping. One day a grower may send a small lot of a certain variety, and should the dealer report its sale at a high price, the sale perhaps being because it was a small lot, he may immediately double or triple the quantity, thinking it is just as easy to sell much as little. On its arrival the dealer is compelled to lower the price or let it perish, whereas if the shipper had notified the dealer of the amount he proposed shipping, the dealer could have instructed him as to the quantity to send at once. Not only this, but the dealer could probably have arranged with his customers to take it on arrival at liberal prices. A curious feature of the fruit trade is that shippers demand a daily report of sales from the dealers, yet at no time during the season do most shippers give the dealer any notice of their intentions as to shipments, and be they little or much, a full price is always expected. Nor does it seem to enter the minds of some that the non-arrival of the usual quantity effects the dealer, or would be a disappointment to the purchaser, who had been accustomed to get it regularly. In fact shippers show the utmost indifference to the whole matter.



THE CLEMATIS IN ONTARIO.

MY experience with the Clematis is entirely at variance with Mr. Gotts. (See p. 86.) In fact I have proved that all the varieties of Clematis may be grown with the greatest ease that are grown in England, and the luxuriant growth of foliage and wealth, variety and profusion of bloom which my garden shows, from May until the unopened buds are frozen hard, make a sight not to be forgotten. The first requisite is, they *must* have morning sun, and continue to have plenty of sun for at least half the day. Then the bed must be prepared fully two feet deep, just as an asparagus bed is prepared, almost wholly old manure and a good deal of wood ashes. No one should grow the double varieties at first, but should make their selections from the Lanuginosa and Jackmanii types. These require no cutting from the trellis and laying down, merely cutting off the whole top of the plant in the Autumn about ten inches above the ground and covering for one foot with manure. In the Spring the little sprouts grow to the height of a morning glory vine and blossom profusely. There is one double variety which, although called perennial wooded, still will blossom if the whole top is cut off. It is called Belle of Woking, and is a rich delicate lilac, large and as double as a rose. It is a great pity that gardeners do not grow this exquisite vine more. I have over sixty varieties, and would gladly increase my stock had I room for them.

New Edinburgh. SARAH LAMBERT.

HOUSE PLANTS IN SUMMER.

WHETHER green house and window plants in general should be kept in their pots or turned into the open ground for the summer, depends upon what is desired of them. Probably most plants can be trained into better form in pots than in the open ground, and if one does not care

for the labor but seeks the best results in the form of his plants, continuous pot culture is best. But to lessen labor most gardeners now turn their green house plants out of pots and into the open border for summer, and repot about the first of September. As a rule, plants are cut back when so turned out. Azaleas may need attention to pruning some little time before they are put out. We prefer to plunge the pots of Azaleas in sand in the garden, and not to turn them out, though some gardeners do so. Before these plants are turned out, and when they have done blooming, the weak wood can be cut out and the shoots shortened, and a top-dressing of about an inch of fresh soil be given.

THE AFRICAN LILY.

THE tubers of the Calla, Richardia, continue to produce bloom plentifully for a number of years, but in time commence to fail. A stock of young and vigorous plants can be kept up from the offsets produced annually by the old tuber. Every year, after the blooming season is past, the plants should be allowed to go partly dry, reducing the water week by week until they come to a state of rest, or nearly so. The plants can be kept in the pots, nearly dry, during summer, or a better method and requiring less care, is to turn them out of the pots and set them in the garden about the first of June, and leave them there until the last of August or first of September ; then lift them, repot in fresh soil. At the time of potting take away all the offsets. Boiling water, or even warm water, is not needed to place in the saucer of the plant ; few ever use warm water, although some claim that they succeed better with it. A plentiful supply of water is required during the growing stage, and those who are interested in giving warm or hot water are probably so attentive to the needs of the plant that it is never allowed to go dry, and this may be the cause of greater thriftiness which is atributed to the higher temperature of the water.

Trees and Shrubs

HEDGE, WINDBREAK AND TIMBER.

VALUABLE USES TO WHICH THE OSAGE CAN BE PUT.

AS a hedge plant the osage is too rapid a grower to be easily kept in shape, and requires too great an amount of labor at a season of the year when all work is pushing, and it is almost impossible for the farmer to attend to it when care is most needed. There is but one way that we have ever discovered to keep a hedge in good shape, and that is to trim three times each summer, and in seasons of unusual growth four times. The trimming should always be when the new growth is soft and before the thorns have hardened, as then the twigs cut off will shrivel up, and there will be no thorns left on the ground; but the farmer with a mile or two of hedge cannot—or does not—always get the work done in time, and so the hedge is soon out of shape and thorns scattered along the edges of the fields.

When the osage is allowed to grow into a tree it makes a straight, smooth trunk which is entirely free from thorns, and with its glossy green leaves is a tree of more than ordinary beauty. It is very easily worked, as, like the locust, it chips freely, splits easily, and when green is easily cut, but becomes very hard and dense as it seasons.

A correspondent in Ohio, writing on this subject, says:—This week I passed a neglected osage hedge which had been allowed to grow for probably twenty years unmolested, and the entire line would averge ten good posts to the rod, and in some places sixteen to twenty good posts could be cut in this distance, as some of them were large enough to split into two posts at the but, and long enough to make a second post at the top cut.

Now this suggests a very valuable use for the osage, which is that we combine the benefits of a wind break and a fence, while growing valuable timber. We have evidently mistaken the nature of the plant while trying to dwarf it and keep it down, for like "Banquo's Ghost," it won't "down," but it possesses all the desirable qualities for a wind break and a fence for cattle and horses.

The common price for plants is $2.50 per thousand, and eight plants to the rod, costing two cents, will be all that are needed for this kind of a fence. In three years, or four at the farthest, they will be large enough to turn cattle and then all that is needed to make a perfect fence of it for all kinds of stock, will be pannels of common board fence made of three six-inch boards set along the bases, secured by a stake at the bottom and loosely wired at the ends to one of the growing plants.

These pannels should be made of twelve foot fencing nailed two by two oak uprights, using three uprights to the pannel, and at $1.75 per hundred for lumber will cost about fifty cents a rod. It would cost about the same and would look neater to stretch the woven wire fence along just as close to the hedge as possible, secure it to posts set fifty feet apart and then wire occasionally to a plant in the hedge row.—*New York Herald.*

Vegetables

THE STACHYS.

THE STACHYS AFFINIS, called "Crosnes" by the French, is highly spoken of as a table vegetable, by F. Burvenich, one of the editors of the *Bulletin d'Arboriculture*, published at Ghent, Belgium. He says he cultivated it quite extensively, and has had an opportunity to have them well tested at a recent banquet, on the occasion of the twenty-fifth anniversary of the Circle of Arboriculture. All the guests, he states, of whom there were more than forty, were unanimous in pronouncing the new vegetable delicious. In France, it is in all the fruit shops, and can be bought at from twelve to twenty-five cents a pound, and is very popular. In Germany, it was tested by a Society of Horticulturists at Berlin, the vegetable being served both boiled and roasted. The verdict of the majority was that it has "a fine, peculiar taste, and should be highly recommended to the epicure." Perhaps it would be appreciated by the members of our Association if we were to place this new vegetable upon our list for distribution, in the spring of 1891.

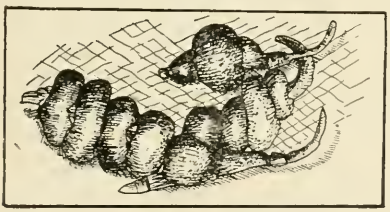


FIG. 48.

Mr. W. H. Rogers, writes in the *Gardener's Chronicle*, England, as follows, regarding the Stachys:—

I first became acquainted with this new vegetable last spring, when I executed an order for America. The roots were smaller than I expected, being mostly about one-and a-half inch in length and about one-third in diameter. I retained half-a-dozen, but omitted to plant them for three or four weeks, when they were in a dry, shrivelled condition, apparently without life; nevertheless I planted them singly in small pots, and, to my surprise, they soon appeared above the surface, and grew so rapidly, that I tapped them from the pots into some rich peaty soil in my kitchen-garden, about two feet apart. They continued to grow, and the foliage soon covered the ground. After maturing, it completely died off, when, in order to test the result, I had one root dug up, and found that it had increased more than one hundred-fold, most of the roots retaining their original size. I selected about fifty, and had them dressed by boiling in milk and water with a pinch of salt for about twenty minutes, when they were served up on toast with a little butter, and pronounced "delicious." I, therefore, recommend every gardener to give Stachys a trial, as I have no doubt it will become a most useful adjunct to our comparatively few cultivated vegetables.



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

NAMES WITHOUT POST OFFICE ADDRESSES. The following persons have sent in their money to this office without giving their post office addresses, viz:—W. W. Collins, John Kerr, Edwin Grainger.

THE MILLS grape vines were not so large as we expected and therefore for the most part we have been able to send them by mail, notwithstanding what we said in the circular. We hope for fine stock for 1891.

THE SUMMER MEETING of the Ontario Fruit Growers' Association will be held at Niagara-on-the-Lake, beginning on Tuesday evening, the 8th of July. A very interesting programme is being prepared, a copy of which will be sent by mail to any one applying for it by card to the Secretary.

WEEKLY MARKET BULLETIN.—It is proposed to issue a Weekly Market Bulletin to all members of our Association who wish it, beginning with the month of July. The object is keep our growers posted on Canadian and foreign markets during shipping season. Would those who want us to make this attempt please send a post card asking to be on the list. If encouragement is sufficient we will proceed. No one will receive it without applying for it.

THE PLANT DISTRIBUTION may be worked to better satisfaction, we hope, next year, by combining the old system of sending out larger stock by express, with the present one of mailing small plants. Any club of five or more might agree to have them by express, in which case we could as well prepay the express charges, as pack and mail the stock separately. Anyone whose plant has come to hand in bad condition may have it replaced another year without charge; we have our contracts with honorable nurserymen, but of so many a few may be poorly packed.

THE fifteenth annual meeting of the American Association of Nurserymen, which convenes at the Park Avenue Hotel, New York City, June 4th, promises to be a notable event. Twenty-five practical men will be present with off-hand talks, or papers on topics of great interest, including Professors I. P. Roberts, L. H, Bailey, J. L. Budd, B. E. Fernow, B. T. Galloway. Also, Hon. H. E. Van Deman, Chief of the Division of Pomology, A. S. Fuller, and many of the eloquent and silvery-voiced speakers so well known to nurserymen. Three hundred or more members will discuss the subjects presented. Reduced fare has been secured on all railroads east of Chicago, and reduced prices also at the new fire-proof hotel. For particulars address Chas. A. Green, Secretary, Rochester, N. Y.

APPLES FROM DENMARK are likely to compete with American and Canadian apples in the markets of England. During the last year the importations of apples from that country, both to great Britain and Germany, has grown into a business of some importance, and bids fair to grow each year. Formerly the apples grown there were mostly consumed in their own markets, and were largely sold from floating fruit shops, moored to the quays ; but of late an organized effort for the export of garden produce has been made, and as a result some five or six hundred thousand pounds in value of apples have been exported during the past year. The leading apple grown for export by the Danes is the Gravenstein, the variety so much grown by the Nova Scotia orchardists, and they will no doubt feel the competition most keenly.

RUSSIAN APRICOT.—The especial attention of our readers is called to the remarks of Mr. Niemetz, with regard to this fruit, on page 103. It would appear that the varieties disseminated have been brought from the south of Russia and consequently their claim of perfect hardiness for our northern sections has yet to be proved. Prof. Budd, of the Iowa Agricultural College, said in a recent Bulletin. "At present we do not propagate any one of the South Russian Apricots. Those we have fruited are small in size, low in quality and the trees are not hardy. If the named varieties of Nebraska prove, when fruited, better in size and quality,and hardier in tree, they will be included in the list sent to our trial stations."

In our plant distribution this spring we have sent out to those calling for the Russian Apricot one of these named varieties, known as the Budd. We shall anxiously wait to hear of its success when fairly tested.

ORANGE GROWING in Southern California has strong attractions for some of our Canadian fruit growers. Mr. E. J. Woolverton has lately returned from Riverside, and gives a glowing description of the beauty of the country, the salubrious climate, and the golden profits of growing the citrus fruits in that highly favored section. Entering upon Riverside, after leaving the barren steeps of Rockies, the green foliage and lawns, the orange trees drooping with their golden fruits almost brushing the train, seemed like a paradise on earth, and so taken up was he with the apparent profits that he invested in twenty acres of orange land, and left a son in charge of the same. The varieties most cultivated, samples of which were sent in to our office, were the Washington Navel, the Blood and the St. Michael, all fine large oranges of excellent flavor. We imagine that even in that land of golden dreams there are many discouragements to the fruit grower. The land is very high priced, irrigation is costly, markets are distant and low prices must be often expected.

THE JOHN HOPPER ROSE has been so much called for by members of our Association that the supply has run short. We have tried the leading rose growers both in America and England, but cannot make up enough. We have therefore been compelled to substitute two other equally beautiful roses for a part of our members, at the same time asking their forbearance until another season, when we shall place John Hopper again on the list, so that all who wish it may secure it. The two roses used as substitutes will be, (1) *Mrs. John Laing*, a new Hybrid Perpetual rose, of great promise : the flowers are large, finely shaped and exceedingly fragrant ; in color soft pink. The plant is extremely free from mildew. It commences to flower early and very profusely, and continues until quite late. (2) *Anna de Diesbach*, a beautiful and most desirable garden rose, raised in 1858 from La Reine. In color the most lovely shade of carmine ; flowers very large, double and fragrant. Unfortunately we cannot succeed in getting any but small green plants.

THE CANADIAN TARIFF OF CUSTOMS has been amended, the changes coming into effect the end of March last. The duty on fruit has been considerably advanced and is now as follows : Apples, 40 cents per barrel (formerly free); blackberries, gooseberries, raspberries and strawberries, 3 cents per pound (formerly free) ; cherries and currants, 1 cent per quart ; cranberries, plums, quinces, 30 cents per bushel ;

peaches, 1 cent per pound (formerly free); grapes, 1 cent per pound; dried apples, 2 cents a pound; other dried fruits, 1 cent per pound. On fruit trees and plants as follows: Apple, 2 cents each; peach trees, 4 cents; pear trees, 4 cents; plum trees, 5 cents; cherry trees, 4 cents; quince trees, 3½ cents; seedling stock for grafting, 10 per cent.; grape vines costing ten cents and less, 3 cents each; raspberry and blackberry bushes, 1 cent each; rose bushes, 5 cents each. Some modifications in the above, especially the nursery stock, are being made, but as yet no authorized list of them has come to hand. It is to be hoped that these regulations in our interest may contribute to the wealth of our fruit growers, who are surely as deserving of consideration as any class of the community.

THE IMPERIAL PRODUCE COMPANY.—We are hoping for some good results to come to fruit growers from the operations of this company, whose circular and advertisement appears in this number. We are informed that cheesemen, throughout the country are well pleased with the sales made for them so far in the British market, and are sending in regular contracts for the whole output of the season. Mr. A. McD. Allan, who is outside manager, writes, "Our British arrangements are becoming more and more complete all the time, and we desire every one to know distinctly that we handle nothing but Canadian goods; and already we are being known in England as the Canadian house. We will give Mr. Britisher to know all the time that there is an important difference between *American* and *Canadian*. We are going to supply the great civil service stores of London with special lines of apples in small packages, and in order to do so will have to re-pack. You and all fruit growers can rely upon it that my efforts will be unceasing to build up a very high reputation for our fruits in the markets of the world, and am convinced that if we do not make any money for growers, then it can't be made."

HOP-GROWING for profit is the chief agricultural industry engaged in by farmers in Central New York, south of Utica, in the Chenango Valley, and especially about Waterville. During a recent trip east the writer was much interested in the extreme contrast which a country devoted to hop-growing presents when compared with a fruit country. Leaving the Niagara district, descending the mountain at Lewiston via the New York, Ontario & Western, where the whole landscape is full of fruit trees, laden deeply with bloom, and awaking in the above mentioned region, one is surprised to find a country utterly devoid of fruit trees, and in their place a forest of poles for hop vines; and in place of fruit packing houses, hop-houses, for drying and packing hops, surmounted by peculiar ventilators.

A friend there who has one hundred acres in hops, stated that it was the only branch of agriculture which really paid in that section. Although the expense of growing and harvesting hops is very heavy, amounting to about $100 per acre, or about ten cents per pound, and in some seasons the selling price is not over that amount; yet for a period of twenty years the average has been twenty cents per pound, and on one occassion reached the enormous price of $1.00 per pound, giving fortunes to growers in a single season. There are three kinds of hops grown; the Canadian, the Humphrey, and the Early Cluster, the latter of which is the most generally grown. In hop-picking season everybody turns out and all seem to enjoy the fun, if one may judge by the songs which enliven the hop yard; while the men cut the vines and pull the heavily laden poles, laying them across the end of the boxes to be stripped by the women and girls, who thus earn a good deal of money for their own private use.

Question Drawer

44. SIR:—How late in the season may bush beans be sown?—W. W. R., TORONTO.

If with any prospect of ripening a crop, not later than the 20th of June; but if for using green, they may be sown as late as the 12th of July.

CINERARIAS.

45. SIR,—How shall I care for Cinerarias to keep them perennial? All that I have seen die after blooming, do they want a rest; if so, how should they be treated while resting, and for how long?—J. K. D., *Almonte*.

Reply by A. Gilchrist, West Toronto Junction.

Cinerarias are not worth keeping over; they are best raised from seed each season. No florist to my knowledge trys to keep them over. I never do.

ALKALINE WASH FOR APPLE TREES.

46. SIR:—Which is the proper time to apply an alkaline wash to fruit trees?—M. J. C., WINDSOR.

That depends on the object. If for the bark louse, about the first week in June, as then the young lice are most easily destroyed; if for the borers, once a month in June, July and August, for at that time the moth is busy depositing her eggs.

SCOTT'S WINTER APPLE.

47. SIR,—Please give me short information about Scott's Winter. (1) Is it hardy? (2) How long under favorable circumstances will it keep? (3) Is it a good cooking apple? (4) Habits of growth? X. Y., *P. E. Island*.

Reply by R. W. Shepherd, Jr., Montreal.

(1) It is quite hardy. (2) Will keep under favorable circumstances all through winter to end April. (3) It is an excellent cooking apple. (4) Growth vigorous, rather upright than spreading.

DURATION OF AN ASPARAGUS BED.

48. SIR:—Please say how many years an asparagus bed will last.—W. W. R., TORONTO.

The duration of an asparagus bed depends very much upon the treatment it receives. Injudicious cutting, that is continuing to cut too late in the season, is very injurious, and if persisted in year after year would soon spoil the bed. With proper care an asparagus bed should last in good condition for a period of at least twenty years, and we have known them, under certain conditions, to go on for an almost indefinite period.

CURING TOBACCO.

49. SIR,—How shall I cure tobacco, in order to have it at its best, to use in the greenhouse?

I tried to dry some in the shade, by hanging it up in an old building, but it got somewhat mouldy and does not appear to give as strong a smoke as cigar stumps.—J. R. D.

Tobacco is usually cured by hanging up the plants, singly, in a building through which there is a free circulation of air. Mr. Gilchrist thinks that the best and cheapest way is to send to the nearest cigar factory and get a bale of it, if wanted for smoking a greenhouse.

PLANTS DAMPING OFF.

50. SIR,—WHAT is the cause of plants "damping off"? I am loosing hundreds of Cabbage and Cauliflower in that way; I transplant them but it appears to do very little or no good. There are not many of any other kinds that are going in that way. Can you give a remedy? The plants are in a greenhouse; have not started hot beds yet. Temperature varies considerably.—J. K. D.

Reply by A. Gilchrist.

Early Cabbage and Cauliflower are very liable to damp off in a close greenhouse or hot bed; give plenty of ventilation, it is a Fungi and develops rapidly in a close atmosphere,

FRUIT GROWING IN MUSKOKA.

51. SIR,—The strawberries I received and planted last year all lived and made a good growth. I cultivate the Wilson, and find them very successful. We gathered a good

crop the last two years when strawberries have been so poor a crop in many places. Small fruits are very successful in this part of the country if properly cultivated, and prices are excellent for all that are offered for sale. I have found the HORTICULTURIST a great benefit, and would not like to be without it. What kind of pears would be suitable for this climate? Wishing you every success in the furtherance of the interests of horticulture.—JESSIE PARKER, *Gravenhurst*.

[We would recommend a trial of Clapp's Favorite and Flemish Beauty.—EDITOR.]

SIZING FOR HOT-BED SASH.

52. SIR,—Would you please give me a recipe for painting muslin covers for hot-bed sash, to be used instead of glass.—A SUBSCRIBER.

In reply we canot do better than quote from *Popular Gardening* the following answer:—For three sashes of usual size, get one quart of linseed oil, one pint of water, yolks of fourteen eggs, and the whites of four eggs. Then boil oil and lime water together, remove from the fire, and after a few minutes stirring, add the beaten eggs, stirring again until all is thoroughly mixed. The muslin being tacked on the frames, is painted over with two coats of this mixture, and when dry will be ready for use.

FLEMISH BEAUTY PEAR.

53. SIR,—(1) Is it good flavor? (2) Is the tree vigorous? (2) Is it hardy? (4) Does it meet a good market? X. Y., *Charlottetown, P.E.I.*

To all these enquiries we may reply in one word, Yes. The quality of the Flemish Beauty is very good, indeed many prefer it for eating to any other variety, especially when gathered on the green side, and ripened indoors. The tree is a vigorous grower, hardy, and an early and abundant bearer. When the fruit is well grown, it commands a good price in our markets, for it is a large and very handsome, and sometimes takes on a fine reddish-brown color on one side, otherwise becoming pale yellow at maturity.

The difficulty in our way, in growing this pear in the Niagara district, is its tendency to crack and spot, which diseases render the fruit almost unsalable, and the tree when once attacked by the blight is generally beyond recovery, as it is taken in the trunk and not in the branches only, as is the case with the Bartlett.

SEEDING DOWN AN ORCHARD.

54. SIR,—What is the best to seed down an orchard with? How many bushels to the acre will it take? A. A. FUNNELL, *Trenton*.

Reply by John J. Hobson, Mosborough, Ont.

I have had very little experience in growing any of the grasses but timothy and the different varieties of clovers; I have watched the results of the experiments which have been carried on at the Model Farm, in growing the different varieties of grasses, and it has made me feel quite satisfied that I never went into the testing myself,—and unless I see more satisfactory showing I will keep on on my own line—my practise is to sow seven pounds of common red clover, from one to two pounds of Alsike (according to the nature of the soil) and four pounds of timothy to the acre.

THE ONTARIO APPLE, FIG CULTURE, THE CORTLANDT GRAPE.

55. SIR,—Why don't some one give a true description of the Ontario Apple now that that variety ranks highest in the list for Ontario. To say that it is good size, may mean all the way from the English Russett to a Gloriamondi; a late keeper, may mean Dec. or June; Highly colored means a Belleflower, Greening, King, Blue Pearmain or any and all the shades of the beautiful Princess Louise, quality might be rated so as to be understood by comparison with other apples. What I most desire in my present condition is "more light," won't you kindly furnish it for me. I am interested in fruit culture; am setting an orchard for commercial purposes. I am very anxious to know just what the Ontario is like and if I can make it *rate best* for British Columbia, I will not hesitate to set a thousand trees as soon as I can prepare the ground.

I also would like to know of any varieties of figs that can be successfully grown in Ontario, and can you give any information in regard to the Cortland grape advertised in the HORTICULTURIST.

I have a niche in the mountain well sheltered from cold storms, and am anxious to try growing some of the tender varieties of fruits that would not succeed in more ex-

posed situations, this is my reason for making enquiry regarding figs.—GEO. W. BEELEE, *Agassiz, B.C.*

The Ontario Apple was distributed by our Association for testing in the year 1879. It was originated by the late Chas. Arnold, of Paris, and by him considered one of his best seedlings. At the winter meeting in London, in January 1885, it was referred to by Mr. T. H. Parker, of Woodstock, as a magnificent apple, and keeping well until that time. Mr. Wm. Saunders stated that he had had it fruiting for two years, and for its age it was the most productive tree he had. The fruit is uniform in size, an excellent cooking apple, and a fair table apple. Mr. A. MacD. Allan said it was one of the best of shipping apples.

It is hardly wise for us yet to recommend anyone to plant this apple extensively for a commercial orchard, until it has been more fully tested. We would like to hear from a good many, briefly giving the result of their tests with this apple. The tree at Maplehurst is unfortunately not living.

Figs are not grown at all in Ontario, so that we have no experience to offer. There are several hundred varieties, but all are tender, not enduring a lower temperature than fourteen degrees Fahr. above zero.

The Cortland Seedling grape has not yet been tested to any extent in Ontario. Its disseminators claim that it is the earliest grape in North America, ripening about the middle of August. The color is black, and the berries large and sweet with a thin skin and very little pulp. It is said to be very hardy, and quite free from mildew.

Open Letters

OPENING UP THE BRITISH APPLE MARKET.

SIR,—Prospects so far for fruit crop are exceptionally good. I have finally decided to go to Britain in the early fall to take charge of all fruit sales, and have now made magnificent arrangements where cargoes can be broken and forwarded on the through bill of lading into all cities and large towns in Britain; storage and re-packing rooms *free*, and we have *special* agents in almost every town now, so that we shall be in a position to supply local markets direct.—ALEX. MCD. ALLAN.

FRUIT IN HURON CO.—STRAWBERRY YIELD.

Gooseberries were a very good crop here last year. The yield on my grounds was seven hundred quarts on a tenth of an acre. Your subscriber here, Mr. A. Stewart, from a bed of strawberries 92 feet by 20, set out the spring previous and well attended to, gathered last summer 230 boxes. That is the best we have heard of in these parts. Wishing prosperity to THE HORTICULTURIST and success to yourself in your good work. I am yours truly, SAMUEL FEAR, *Brussels, Ont.*

LIST OF SCIONS FROM RUSSIA.

From Dr. A. Grell, Moscow, a celebrated grower of Russian fruits:—(1) Miron; (2) Bieloi Naliv, (White Transparent); (3) Skvoznina, (Transparent); (4) Anis, very hardy, like Antonovka; (5) Skrut; (6) Skryj Apple; (7) Aport (in your country, Alexander); (8) Antonovka (white); (9) Arkad; (10) Worgulek; (11) Koryschnevoi (Cinnamon apple); (12) Somnitelnoe (Doubtful). From Solovieff of Moscow:—(13) Gruschevka (Pear Apple); (14) Plodovitka, (Productive Apple); (15) Titovka, (Tetofsky); (16) Arkad; (17) Aport (Alexander); (18) Dynoe, (Melon Apple); (19) Miron; (20) Korobov, (Box Apple); (21) Borovinka, (in your country Duchess, but in Russia we have two sorts, light and dark skinned.) From Kozlov:—(22) Koryschnevoi (Cinnamon); (23) Legen, (Keeper); (24) Stone Antonovka; (25) Borovinka (Duchesse); (26) Lopough; (27) Plodovitka; (28) Lebedka, (Swan Apple); (29) Antonovka, white; (30) Titovka (Tetofsky); (31) Billoi Naliv. From Government of Tschernigov:—(36) Stone Antonovka, (from the garden it is disseminated in Russia); (37a) Putim Fall; (37b) Putim Summer; (38) Stklianka Glass; (39) (Lolotarev) Gold Apple, good winter apple. From Mr.

Ansjutin:—(15) Antonovka, (late, Government Kursk), three varieties; (9) Sapieganka or Polish Bergamot; (10) Hamburg Bergamot; (11) Ukraine Bergamot; (12) Salviati; (13) Solenoi, (Salt Pear, for evaporating); (14) Ogust (excellent winter pear, from Kaukar acclimatised in Russia); (16) Sklianka; (17) Naliv; (1) Anjutin's Apricot, white, large, early; (2) Anjutin's Apricot, small late; (3) Anjutin's Apricot, yellow, early; (4) Anjutin's Apricot, yellow, late. From my garden;—'40) Gana, (autumn, oblong, handsome); (41) Borodavka, (Giant apple, earlier than Alexander); (42) Russian Tirol apple, (excellent autumn apple, it yields every year); (43) Papirovka, (Paper apple, summer); (44) Ziganka, (Gipsy), (a good red winter apple); (45) Gremuch, (a very large autumn apple); (46) Baba, (large, early); (47) Gleck, (the best for evaporating); (48) Niemetz Plum, (found in my garden, very early, July, excellent); (49) Cher Kush, (Moldavian Plum); (50) Plinka, (the earliest small pear). Crimean varieties: — (51) Chelebi, (grows also at the north); (52) Golden Stone apple, (Golden Pippin); (53) Sari-Sinap; (54) Kara-Sinap; (55) Gul-Pembe; (56) (?)

NOTE BY EDITOR:—All these interesting varieties have been put in charge of the Horticulturist at the Central Experimental Farm in the meantime. In course of time arrangements will be made for the general distribution of the most valuable, to the members of our Association.

Our Book Table

TRANSACTIONS OF THE INDIANA HORTICULTURAL SOCIETY for the year 1889, being the Proceedings of the Twenty-Ninth Annual Session, held at Indianapolis, Dec. 3, 4 and 5. 214 pages, cloth. C. M. Hobbs, Secretary.

SEVENTH ANNUAL REPORT OF THE BOARD OF CONTROL OF THE STATE AGRICULTURAL EXPERIMENT STATION at Amherst Mass., 1889., C. A. Goesmann, Amherst, Director.

TWENTIETH ANNUAL REPORT OF THE ENTOMOLOGICAL SOCIETY, ONTARIO, 1889. W. E. Saunders, London, Secretary-treasurer.

THE STATE AGRICULTURAL COLLEGE OF THE STATE OF COLORADO. Second Annual Report of the Agricultural Experiment Station, 1889. Chas. L. Ingersoll, Director.

HINTS ON VEGETABLE AND FRUIT FARMING, by Charles Whitehead, Maidstone, England, 1890.

NOTES SUR LA SOCIETE D' HORTICULTURE DE LONDRES et sur la Societe Pomologique Americaine par Ch., Joly, Paris, France, 1890.

THE DOMINION ILLUSTRATED is a unique Pictorial Weekly, all the engravings being photo-graved, and thus being perfectly trustworthy. Nothing could possibly give foreigners a more correct idea of our country than such a publication as this, and our own people should highly value so interesting a weekly, which gives such prominence to our native land. The address is 73 St. James St., Montreal, Que.

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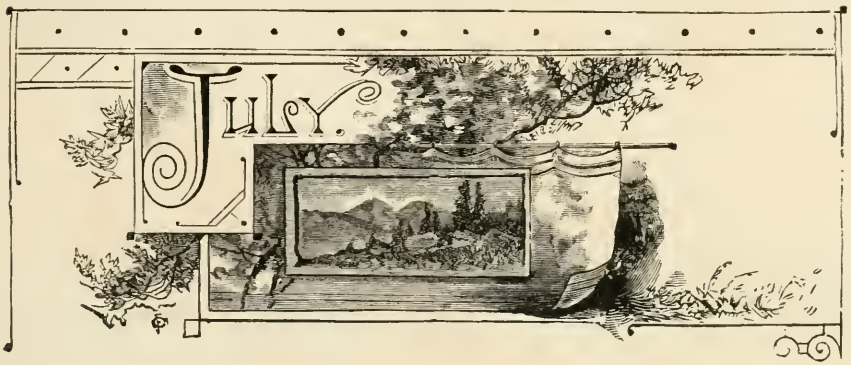


GOVERNOR WOOD

THE

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VOL. XIII. 1890. No. 7



THE GOVERNOR WOOD CHERRY.

HOW delicious to the taste of the thirsty farmer, wearied with toiling in the hot sun, is the refreshing juice of the ripe cherry, and how kindly has the great Creator provided an ample succession of such delicacies for the benefit of His creatures, each to ripen in the season when it is most acceptable.

For market purposes, no doubt it is wisest to plant some of the many excellent acid cherries of the Morello type which are so much surer of a crop than are the Heart and the Biggarreaus, yet, in sections where they are found to be hardy, as in southern Ontario, there is money in growing these latter for profit. At Maplehurst the cherry crop is looked upon as one of considerable importance, indeed there is no doubt that it pays as well, acre for acre, as the strawberry, and there is little labor except with the picking; and even this is less than that required for gathering berries to the same value. Of course the curculio has always been a nuisance to the cherry grower, but since the use of Paris green has been found to be so effective in destroying it, the crop can be grown quite free from its ugly larva.

One of the best of the sweet cherries, of the Heart class, we consider is

the Governor Wood, of which an excellent representation is given in our colored plate. Preceded in our orchard only by the Early Purple, this excellent cherry ripens about the middle of June and continues in use until the end of the month. It always commands the highest price in the market, seldom going for less than ten cents a quart.

This cherry is a native of Ohio, having been raised by Prof. Kirtland, and is one of his best seedlings. The fruit is thus described by Downing :— Large, roundish heart-shaped, skin light yellow shaded and marbled with bright red. Suture half round. Stem an inch and a half long, in a broad cavity. Flesh nearly tender, juicy, sweet and delicious. Very good to best.

SEASONABLE HINTS.

PRUNING THE RASPBERRY.

A MEMBER of the Missouri Horticultural Society says that as a result of twenty years' experience he prunes the fresh raspberry plants when only ten inches high by pinching out the leading bud, and this checks the upward growth and induces laterals. Low stocky plants are thus produced which will not blow down afterwards. The stocks are again pruned when about two feet high, which is easily and rapidly done with a sharp pruning knife.

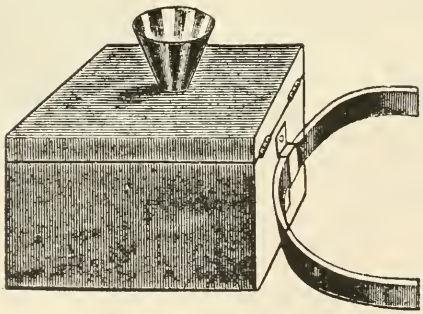


FIG. 49—BASKET HOLDER.

We consider this good advice. We have found it to be injurious to the plants to allow the canes to make a long growth and then to cut them back severely late in the season. The result of such treatment is, that the canes will die back a few inches and very little side growth will take place ; and this is worse than not cutting them back at all.

A BASKET HOLDER.

The handling of the quart basket in picking is one of the most awkward parts of the picker's work, especially in the raspberry plantation, where it is inconvenient to place it on the ground on account of stooping to place the berries in it, and, if carried, one hand only is free for picking. Some pickers attach a pail or basket to their belt in front, and in this set the basket, thus having both hands free for picking. Of course much more

work can be accomplished in this way. In Wisconsin an arrangement for the purpose has been devised which is shown in fig. 49, and is thus described :—

"A little device that interested me was a picking box or form into which the berry box was placed while being filled with blackberries or raspberries by the picker. The box was made of tin of a suitable size to receive the quart box. The box has a hinged cover, with a funnel shaped hole through which the fruit is dropped into the berry box within. There is a slot on one side for the strap which goes around the picker's waist. This box prevents loss in picking berries, and, being held by a strap, both hands are left free to gather the fruit."

MARKETING BERRIES.

It is strange that many of our fruit growers have so little regard to the kind of package in which they ship their fruit and to the manner of putting it up.

A great deal of good fruit is plundered in transit from the grower to the consignee, on account of badly made packages, which, in the attempt to give plenty of ventilation, also give opportunity for theft. At the railway station at Caledonia we observed, the other day, a large consignment of strawberries being transferred from one line to another *en route* for Hamilton. They lay on the trucks on the platform for about an hour, during which time groups of boys were freely helping themselves to the contents through the openings for ventilation, and the officials seemed to pass it by unnoticed. It is hardly fair to growers to be blamed by consignees for short measure, which is often the result of pilfering such as is here described. Our Association should give the railway and express companies no rest until these abuses are remedied. We will discuss them at our annual gatherings, we will wait upon the companies in committee and expose them in the public press, until satisfaction is guaranteed to us.

Our American friends use pint baskets for blackcaps, and half pints and even third pints for the red raspberries, as they say that anything larger makes too much bulk, and the fruit is mashed by its own weight. No doubt there is an advantage in this, both to the grower and the consumer; but we look to the question of profit, and unless the smaller packages will sell for a proportionately higher price, it will not pay us. Mr. Varney, of Erie Co., N.Y., says his red raspberries sold at from 6c to 8c. a pint last season, and Shaffer's Colossal for 5c. a pint. We would suggest a general experiment with pint baskets for raspberries for this season, and shall be glad to publish the experience of our readers.

CURRANTS.

Currants like all other fruits should be gathered only when dry, and all bruised fruit should be carefully thrown out. Pickers need to be carefully

instructed, not to take hold of the fruit itself, but to handle them by the stems only. They may be shipped in baskets or in crates, but if the former is used, the ten-pound veneer grape basket is preferable to one of the larger size. For fine samples, such as we usually have of the Cherry or the Fay, it pays to pack in the 24-qt. crate. Currants should be sold by the pound, as indeed most fruits should be, but, so far in Canada, it is only the grape that is marketed in that way.

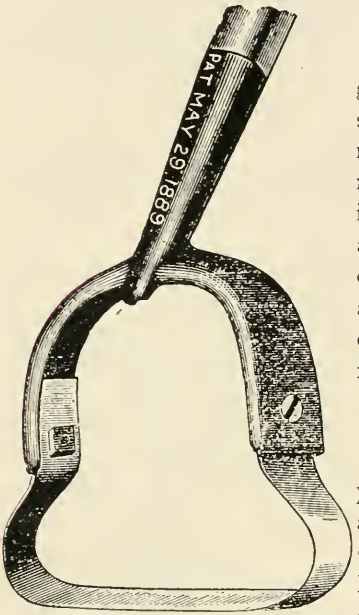


FIG. 50.—SCUFFLE HOE.

A GOOD SCUFFLE HOE.

We have been trying in our vegetable garden a new scuffle hoe, which is represented in our engraving, and find it to be a really useful tool. The gardener says he has not used one which he likes as well for working among little stuff. It can be used around and under the leaves of plants without danger of cutting them, and as soon as the plants appear it can be used so close to them as to cut every weed and yet not injure the small fibrous roots.

TIDY FRUIT PACKAGES.

The great importance of a neat fancy package in the sale of fruits is not yet by any means fully understood by our growers. Great improvements have been made in the last few years, and especially since, by the establishment of so many basket factories, baskets are made so cheap that they can be sold with the fruit. At one time the ugly wooden crate, dingy with age and containing baskets marked with the juice of the previous season's crop and musty with decayed fruit, was used quite commonly by Canadian fruit growers; but, happily, since the days of basket factories and cheap gift packages, this state of things has disappeared. Still there is room for improvement, and he who would attain the highest success must keep abreast of the times, even in matters of detail.

Careful handling by the pickers saves much labor in preparing the strawberry for market, because it is quite possible to have them trained to keep the grade of uniform excellence, throwing out all under sized fruit or placing it in a separate basket.

Crates holding sixteen or twenty-four quarts are the most convenient size and seem to take best in the market, as the quantity is just about what is needed in a family for preserving. The covers should fit closely to the fruit, and not leave room for it to move about in transit. A great deal of harm is done to

fruit in carrying it to the station by rapid driving over stoney roads, for which the railway company or express agent often gets blame which is the fault of the shipper. In England it is customary for the driver of a load, even of grain, to drive his team no faster than a walking gait. Here, with a load of perishable fruit, the driver rides and drives his horses at a furious rate to the station, never seeming either to consider the health of his team or the injury he is doing to his fruit.

In another point we are very careless, and that is the notifying of the consignee in advance of the quantity being shipped. This is a grave mistake, for very often when a man's fruit becomes known in the market it may be all sold in advance, on the advice being received.

We also err in not giving more prominence to the variety shipped. One kind of strawberry, or raspberry, is enough to put in a crate; and by branding the name on the outside of the cover, we shall gradually accustom our buyers to the merits of each sort, and thus get prices to correspond.

The crate described above is useful for several fruits, as blackberries, choice currants, gooseberries, and sometimes cherries, small pears and plums.



FIG. 51.—TEN-POUND BASKET.

For choice apples, pears, peaches, etc., we have been in the habit of using at Maplehurst the twelve-quart peach basket, holding about fifteen pounds, but for anything extra choice we have been using of late the ten pound grape basket, shown in fig. 51 with good results. For raspberries it is wise to use a pint basket, in order to keep the fruit from mashing by its own weight.

The half-barrel is a very good package for pears and extra selected apples, but of late we notice that the New York state growers are using a seven-eighths keg, which they claim pays better for the highest grade of pears.

A little art in all this work will pay. Fancy edgings of colored paper about the fruit are helpful, but the difficulty is to know just where to get it when it is most needed.

Stencils for addressing the package may be easily procured, but if no place is accessible where the work is done as a business, almost any tinsmith can cut out what is needed. Perhaps the neatest kind of a stamp for the variety of fruit, and the names of consignor and consignee is the rubber one which can now be had so cheaply in our cities.

Our business is yearly meeting with more rivalry, and it becomes us to take every advantage open to us, if we would not be left behind.

PROSPECTS FOR APPLES AND PEARS.

AFTER the prodigious show of bloom which was reported in our last number, and the consequent exalted hopes in which, as fruit-growers, we were beginning to indulge, it is all the harder to bear a reverse, and make up our minds to harvest without complaint a very scanty crop of our great staple fruits—the apple and the pear. But every day this state of things becomes more and more manifest; and the old saying is being verified with regard to a light crop following an over-abundant bloom. A mile's walk through the orchard at Maplehurst has given the writer a "fit of the blues," so far as these fruits are concerned. APPLES, except some varieties, will be a great failure. A large amount of the bloom was blighted, and so failed to set; but that only thinned out the fruit and there was enough to give us a good crop until about the twentieth of this month (June) when a leaf blight came upon the orchards, especially upon the Baldwins, Greenings, Kings and Gravensteins, causing a large proportion of the leaves to drop, and now the fruit is rapidly dropping also. The Baldwin suffered similarly last season, but is worse this year, so that there will be scarcely any fruit of this staple kind. The only apple, which is holding its grip firmly to the trees is the Northern Spy; it is very little touched with the blight, and has a fine show of fruit.

PEARS will also be a light crop, especially the Duchess, which has been so largely planted. The trees were a perfect mass of bloom, but no fruit was set. The Bartlett is better, having set enough to give us a fair crop. Clapp's Favorite is fairly well loaded, and so is the Rostiezer (a summer pear of excellent quality).

Not only have we to bear a short crop of apples and pears, but another and a very formidable difficulty for us to face is the apple scab, a fungus which is world-wide in its ravages, but, owing to the favorable season for its development, is this season more destructive to our fruit crops in Ontario than ever before. It is now (June 26th) showing itself on almost every variety of apple, but worst upon the Early Harvest, Greening, Spy and Snow, of which a great part of the fruit will be worthless in consequence. It is also attacking the pears. The Flemish Beauty in most sections is utterly ruined by it; every specimen being black and twisted out of shape. The Bartlett is much affected, but as the diseased fruits are mostly dropping, we may hope for a fair crop of first-class Bartletts.

This state of affairs seems to be widespread. Reports from all Southern Ontario, and Central New York State, all seem to agree in the sad story of blight and scab, while farther north the crop prospects seem brighter.

The following selections from our correspondents in various parts of Ontario will support the above statements:

ESSEX.

SIR,—Judging from our own orchards and reports from others in our locality, I think we will have half a crop of pears and about the same of apples. A few varieties of the former are spotting up some. Plums, from present prospects, are going to give a full load.

Windsor, June 24, 1890. N. J. CLINTON.

MIDDLESEX, OXFORD, BRANT.

Since the announcement that the apple crop had been blighted in some western Counties in Ontario, attention has been directed to the verification of the report, and inquiries concerning a number of orchards in Middlesex, Oxford, Brant, etc., elicited the fact that the injury to the crop is very general. At most, there cannot be half a crop, and probably less. The pear, plum and other fruits have not suffered to the same extent.—*Toronto Globe.*

WENTWORTH.

SIR,—Present prospect for apples about as follows:—Spy, Baldwin, Snow, Colvert. have set well. Gold Russ, King of T. and Greening although full of bloom have not done well—will not give a tenth of a crop—indeed, I think the few that have set will fall on account of the blighted appearance of the leaves. Pears of all kinds a very short crop.

Burlington, June 24, 1890. O. T. SPRINGER.

SIR,—Your favor to hand. I think from a rather superficial observation that both apples and pears are very light. I have been over for a few days in Western New York and the same is reported there. I saw one very fine Duchess Pear Orchard, with scarcely a Pear on it, at Lockport.

Winona, June 23, 1890. E. D. SMITH.

NORFOLK.

SIR,—The apple and pear crop prospect has very materially changed within the last three weeks. The apples have mostly fallen off, and what are remaining on the trees will be badly affected with spots. The pear trees are very seriously troubled with Fire-Blight and Fungus, which will comparatively ruin the crop.

Waterford, June 15, 1890. J. R. McMICHAEL.

PERTH.

SIR,—Pears are not promising so well; many trees that were loaded with blossoms have not a sign of fruit upon them now. The Flemish Beauty only promises a full crop, other varieties having to a large extent blighted and dropped off.

Mitchell. T. H. RACE.

PRINCE EDWARD.

SIR,—The apple prospect is very far from promising. We could not wish for a more abundant bloom, but we had almost a continuation of showers while they were in blossom: the result is a very poor set upon some varieties. The Duchess, Trenton and Ben Davis, and most of such product varieties look well. The spot has already made its appearance, and is likely to be much more destructive than ever; there will not be one-fourth of an average crop.

Pears have shared the same fate as the apples, there being a very bad catch. There are more Flemish Beauties grown here than all other varieties put together, and it is now

almost impossible to find a specimen that is not covered all over with rust. Judging from present appearances there will not be more than ten per cent. of an average crop.

Trenton, June 19, 1890. P. C. DEMPSEY.

FRONTENAC.

SIR,—The prospect at present is that the apple crop will be very abundant. All kinds that can be grown here seem to be bearing this year. Not many pears grown here, but what trees there are promise a good crop.

Cataraqui. D. NICOL.

CARLETON.

SIR,—The prospect of apples is fair to good. There are no regular set out orchards here, as the cultivation of the trees is very precarious. Many people have a few trees set round their houses, but few apples are grown for commercial purposes, they are generally raised by individuals for home use. Of pears none are grown.

Ottawa. P. E. BUCKE.

SIMCOE.

SIR,—In reply to yours : The prospects for apples and pears are very good. Pears are grown here only to a very limited extent. But those who have a few trees are likely to have a fair crop of fruit. Apples are likely to be far better than an average crop. The Duchess especially are setting an enormous crop. Plums are likely to be very good, up to the average—that is the good varieties, while the common red ones are almost a failure.

Cherries are not very extensively cultivated here, as the Early Richmond is the only variety that seems to succeed with us. Those are well loaded with fruit. But most of the trees are injured by "black knot."

Judging from my own plantation Raspberries are likely to be better than an average. Mine are looking better than they have for several years.

Grapes are very backward this year and, although covered during winter, seem to have sustained a considerable damage from the frequent changes of temperature.

Gooseberries and currants are good and will be a good crop ; and what few plants are left of the Strawberries are looking well, so that taking all things together the fruit prospects are very good.

Craighurst, June 19, 1890. G. C. CASTON.

MR. W. FISHER, of Orillia, says that the fruit prospect is good. Black Currants promise an immense yield. The Gooseberry worm is destructive, and owing to the wet weather it is difficult to destroy the pest. His Strawberries—Sharpless and Crescent—wintered well, and are blossoming famously. The Lombard Plum, after two good seasons, again promises a fair yield. The good old Duchess of Oldenburg apple trees are covered with blossoms again. The blossoms on fruit trees came out and disappeared very rapidly, but the fruit was formed. The growth has been amazing—fully a foot of new timber already having formed on the horse chestnut trees.

GIRDLING THE VINE.

KNOWING that Dr. Fisher was one of the strongest objectors to girdling, I suggested that experiments be made by him, he to furnish fruit from his own vineyard of his own selection. Last year the arrangement was made. He took one row fifteen to twenty feet long.

Dr. Fisher was asked to girdle one arm of each vine leaving the other in natural condition. The Committee of the Horticultural Society visited Dr. Fisher's vineyard the last week in August. It was curious to look at the row; on the girdled half the grapes were in a fit condition to pick for market. The single grapes were as large as the Hamburgs in my cold grapery. The others were just beginning to turn; the Dr., on the 25th of September, picked and sent the first lot to Dr. Goessmann; on the first day of October he selected specimens from each vine, and sent them for analysis.

The two important elements in the Grape are sugar and water. In the girdled vines the portion of water was seventy-six and a fraction per cent. In the ungirdled vines it is eighty-one and a fraction per cent. In the girdled there was seven and a fraction per cent. of sugar and in the ungirdled six and a fraction of sugar. The girdled fruit thus surpassing in both respects. Dr. Fisher said to me: "I was never more disappointed in all my life, although I had given it more attention than ever before, and I had become certain before the analysis that there was more sugar in the girdled fruit; there was more sweetness in its taste."

Now, if this is a fact—if it does not injure the fruit, and it ripens from one to two weeks earlier and increases its size from one-third to one-half, it is certainly worth considering. In taking the later varieties and ripening them a fortnight earlier it gives us more scope, and it is so easily done, it is done in a moment, girdling the vines below the lowest fruit bud. If there are a half dozen bunches—one-quarter of an inch below the lowest fruit bud, girdling on July 15th perhaps. Mr. Wheeler says any time after the fruit gets to be the size of buckshot. He has done it for ten years without any perceptible injury; still it is a question whether in the end it will not seriously affect the vigor of the vines.—*From paper read by F. J. Kinney before the Boston Farmers' Meeting.*

THINNING FRUIT.

THE horticulturist of the Missouri Experiment station has made some analyses of apples during the different periods of their growth, which show that much of the greater proportion of the ash is stored up in the early part of the growth of the fruit. This is urged as an additional reason for thinning as soon as the wormy and imperfect specimens of the fruit can be distinguished. A barrel of large and perfect apples takes a smaller amount of mineral plant food from the soil than a barrel of small inferior fruit. The apples on an acre of ground where the trees stand thirty feet apart and yield ten bushels of fruit to the tree, take from the soil

more than forty-three pounds of potash. This suggests the use of ashes, or of the potash salts, as a dressing for orchards.

In reply to an inquiry concerning the distance at which fruit should be allowed to remain, the editor of the *Country Gentleman* says:—the distance will vary with the size of varieties, and with the intended uses of the crops; but as a general or approximate rule, large peaches should be four or five inches apart on the bearing branches, and small or early ones three or four inches; pears should be at quite as great distances, with more variation for differences in size, for while such diminutive pears as the Summer Doyenne need not be more than two or three inches apart, the Angouleme should be at least six inches. Plums may be rather less than peaches, but the necessity of thinning is even more urgent, to save from rotting. Any orchardist may have observed the improved quality, as well as size, in apples with a moderate crop, and should thin accordingly. It should not be forgotten or overlooked that fruit properly thinned is so much improved in quality, as well as size, that no loss in the magnitude of the crop occurs, and a positive gain in quality and price is secured by thinning.

TRADE IN CHOPPED APPLES.

IT is stated that the export trade in chopped apples—a dried product from inferior fruit and material left after the preparation of the best quality of evaporated fruit—had increased from small orders in 1880 to 11,000,000 pounds in 1888, and 20,000,000 pounds could have been sold in 1889. Cider is consumed in France at the rate of 276,000,000 gallons annually. American chopped apples are largely used for conversion into cider, and preferred to the home-grown article, being better preserved and of finer flavor. It appears now that there is room for all we will be able to export.

TASMANIAN APPLES.

ON April 28th, 2,400 cases of these were sold in Covent Garden Market. They consisted chiefly of Ribstons, Cox's Orange Pippin, Scarlet Nonpareil and King Pippin, other kinds, including Sturmer Pippin, Blenheim Orange, Prince Albert and Crow's Egg, also several cases of Pears. There can be no doubt that in the near future these Australian apples will take a very important place among foreign fruit imports. It cannot well be otherwise, for they have no competitors worth speaking of, our own apple season being practically at an end by the time they are due. They have but one fault, and that is a want of that crispness that distinguishes good fruit of home growth. But they have what is perhaps more

in their favor—a fine appearance, and it will be a long time before the inhabitants of large towns learn to buy fruit for its flavor alone. Color and size are indispensable to make any fruit sell well in the London markets, and these points are just what the Tasmanian apples are strong in. Probably in a few years Tasmanian apples will be as plentiful with us as American apples are now, although it must be borne in mind that the cost of transport is much more, not only by reason of a longer sea voyage, but also because the deterioration of the fruit on the journey must be guarded against by means of specially constructed cool chambers. The rapid growth of this trade shows, however, that the profits are sufficiently large to warrant this extra expense, and we may now regard Australian apples as forming an important item in the supply of our fruit markets.

Home growers, contrary to what is usually the case when a new source of supply is opened, may regard the probable great extension of the Australian apple trade with indifference, as they have time to dispose of their own produce before the foreign fruit comes to hand. Whether the importation in bulk of good apples during the spring months is likely to affect the value of home-grown forced fruits of various kinds is another matter, but it is evident that the apple is as much appreciated at this time of year as in the winter.—*The Garden.*

HARDINESS OF THE PRINCESS LOUISE.

IN the May number of the HORTICULTURIST, page 155, L. Pasche asks a question in reference to the above. It might be partially answered by one year's experience of its growth in Muskoka. The Princess Louise apple was one of the trees and plants distributed by the Fruit Growers' Association to its members for 1889. I selected it, and received it by mail as usual in good time for early spring planting. With it I planted two larger trees of the same apple, bought from a nurseryman. The trees grew well. To-day, on looking to see how they had passed through the winter, I found all three looking healthy and showing signs of growth, even to the top buds of every young branch.

Cape Elizabeth, Muskoka, Ont. F. W. COATE.

GROWING PLUMS IN THE COLD REGIONS.

AT some of the meetings of our Association the novel mode of protecting plum trees from the destructive influences of the cold which has been employed in New Brunswick has been referred to and partially described. It is, therefore, interesting to notice in a late number of the

Farmers' Advocate, an article by Mr. Robert Hamilton, of Grenville, P.Q., in which he fully describes this method, using the accompanying sketch as an illustration thereof. It is Mr. Sharp, a fruit grower of Woodstock, N.B., who has been employing this method on a large scale with entire success, even with some of the finer varieties. The tree shown at *a* in the illustration has been trained for the purpose of laying down by allowing the roots to grow in such directions as will not interfere with it. "The trees," to use Mr. Hamilton's own words, "are bent southwards, and the roots, to allow of this, are directed to the east and west—any large roots on the north and south sides are removed. In the Fall all that is necessary to do is to take a spadeful or two of earth from the south side and gently bend the tree down and fasten it there. This may be done by weighting or,

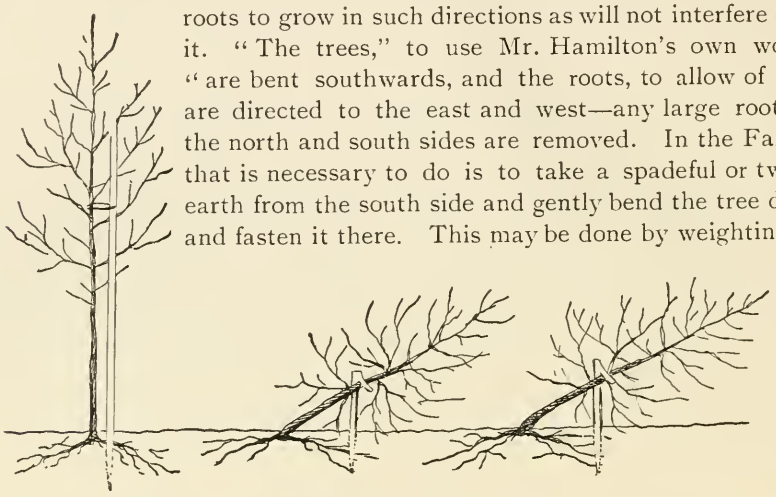


Fig. 52.—THE POSITION OF MR. SHARPE'S TREES IN SUMMER AND WINTER.

better still, by means of a strong crotched stick driven well into the ground. A plum orchard treated in this manner, where, as in Mr. Sharpe's, the trees are planted rather closely, has the appearance of a brush pile in the Fall. The trees, laid almost flat upon the ground (Figs. *b* and *c*), gather the snow and retain it, but from the branches lying with their length parallel to the ground they are not broken, and being perfectly sheltered by the snow their fruit buds remain uninjured, and an abundant crop is the result. And this fruitfulness is not wholly due to the protection given to the fruit buds by the sheltering snow, but in part to the check that is given to the wood growth by the bending down and retaining the trees in their recumbent position till after blossoming. Instead of a vigorous wood growth numerous fruit buds are produced; these, duly protected, are in turn followed by the fruit.

The trees treated in this manner are, after blossoming, raised up and fastened to strong stakes driven into the ground beside the trees for that purpose.

As far as appears at present there are no special varieties that are better adapted to this treatment than others. All the sorts that are grown in the most favored regions of our country submit to this treatment and thrive

under it, and when the trees become so large as to be unmanageable they may be permanently fastened down. Although only plums have been tried in this way, there is no reason to suppose that cherries and pears may not be made amenable under such treatment.

PLAIN HINTS ON FRUIT GROWING—III.

TREE AND PLANT FOOD.

THE importance of understanding something of how trees and plants are fed from the ground becomes apparent as we engage in the work of fruit-growing and gardening. We soon see the value of plenty of fibrous roots on the trees we set in the ground, by the appearance of the foliage and growth of those that have, compared with those that have not, such fibres; and when we take into account what has been hinted on before in these papers, respecting the *balance* between root and top of a tree, as we are setting it in the ground, we can estimate pretty correctly how much top to leave on the trunk of the tree. Many trees come from the hands of the nurserymen to the purchasers with long full tops, with correspondingly long bare tap roots, and many inexperienced purchasers, who desire to see a fine top on their trees at the outset, put them in the ground without pruning back either top or root, and then wonder why their trees do not succeed better. There is little chance for a tree to feed from a bare tap root. It is the fine fibrous roots on the main ones that suck from the ground the nourishment the tree needs for vitality and growth. If a tree comes to hand with few fibrous roots, cut back the top, leaving three or four main branches, and these cut short, if you would expect to succeed with your tree. Become acquainted and familiar with the wants of your young trees, and you can treat them with the same interest that you would young live stock of any kind. Your tree has a *life* to sustain and nourish, and you cannot expect it to grow thrifty if you carelessly put it in the ground, as many do, without regard to its condition and wants, and leave it to care for itself. Pruning back the branches and long tap roots tends to force out fibrous roots; and here nurserymen can profit by a hint, if they will, by pruning down the tops of their two and three year old trees, to force out fibrous roots on their main roots, prior to their transplanting at four years old. If young trees are allowed to grow long and few branches, it will be found that their roots are long and bare of fibrous roots as a rule. Correspondingly, if the tops are kept short and bushy, the roots will be more fibrous, and recover transplanting more successfully. I feel the importance of placing stress upon this point, as many would-be fruit growers lose heart

because their trees die for lack of these precautions in the outset. Three years ago I signed an order from an agent travelling for a certain firm for thirteen four-year-old apple trees and 100 yearlings from the graft. I made the agent promise to make good any failures of the four-year-olds. When they came to hand I knew three of them would fail as soon as I saw them. They each had two or three bare tap roots, nothing on them to take up food for the tops. I cut them back well, set them in a moist rich soil, and they put out a few leaves on each, but died before the summer was half past. The yearlings all did well but two. The balance of the four-year-olds had passably good roots and are all doing well, and I have given them no special protection except the long manure mound, to keep back too early flow of sap in the Spring. The agent made good the failures, and I mention this to present the value of stipulating with agents to make up for failures, which they ought to do, providing you act well your part in caring for the tree. I am giving experience from an unfavorable locality for fruit-growing, on a piece of flat elm and cedar land, within three miles from the city of Ottawa, where the fruit-growing has a long winter to contend with and special difficulties to meet. I am testing in a small way, and without great outlay, apples, pears, plums, cherries, apricots, grapes and all the other small fruits, hence, if I succeed, it will be from the application of such care and knowledge as any one can acquire who really has a taste and determination to grow fruit.

Many think that none but gentlemen with means abundant should engage in fruit-growing. This is a great mistake. If you possess a quarter of an acre of tillable land or more, you will be surprised how much delightful and profitable pastime and experience you can enjoy upon it. And as we are speaking about the means by which trees and plants are fed, we may say a word about the kind of food they ought to have. They ought to have rich nourishing food, but not *too* rich. That is, don't throw raw manure into the roots when you are setting out your trees. Give them rich friable loam, if you can get it, especially if your land is on the poor order. While setting your trees, shrubs or plants in the ground, have the thought uppermost in your mind how they are to *feed*, and this will prompt you to do many little things that nobody has ever told you to do. The interest you take will be an incentive to invention, just as a caterer to the public taste does many things peculiar to himself.

In setting out strawberries, don't set them in with a plunge of the spade or trowel, leaving the roots pressed together in a mass, as some do, but take the crown of the plant between the thumb and forefinger of the left hand, and after stirring up the ground well with your trowel, spread the roots well with the three fingers of the left hand, make a narrow opening with the right hand in the loose dirt near your line, place the roots of your plant well spread into the opening, and press the dirt firmly down to the bottom of the

roots on each side, taking care to set low enough to bring the crown of the plant even with the top of the ground, but *never cover the crown*, or your plant may smother. This mode of setting will allow your plant to commence feeding early and soon make progress in growth. Keep the runners and any blossoms cut off until July, if you set in the Spring; if you cultivate in the matted row, train what runners which may grow later in the season around lengthwise with the row; but if you prefer the hill system, keep the runners cut back the Summer through, that the main roots may firm up for next season's growth. For the matted row, which is the most profitable for field culture, rows should be three feet apart, with plants set one foot apart in the row. This will allow a cultivator to run between the rows, thus saving hoe labor. If your plot is small, rows two feet apart and eighteen inches apart in the row for the hill system is preferable, to cultivate with a hoe; this gives you larger berries, and, as a rule, better quality, as they will be more exposed to the sun's heat, which gives a fine flavor.

Nepean, Ont. L. FOOTE.

TREATMENT OF APPLE SCAB.

RECENT experiments indicate that apple scab (*Fusicladium dendriticum*, Fckl.) may be almost entirely prevented by the application of certain liquid preparations, in the form of a spray, that, while harmless to the foliage and fruit of the tree, are destructive to the fungus which causes the disease. Various substances have been found to be more or less beneficial, but at the present state of our knowledge, a *solution of copper carbonate in ammonia* largely diluted with water is to be most strongly recommended. Experiments conducted, the past season, in the orchard of Mr. A. L. Hatch, of Ithaca, Wis., with this preparation proved so far satisfactory that Mr. Hatch has decided to apply the treatment to his entire orchard of about twenty-five acres the coming season, as a means of increasing the income from his apple trees.

DIRECTIONS FOR PREPARING AND APPLYING THIS FUNGICIDE.

The copper carbonate and the ammonia may be procured through almost any retail druggist. As the former is not always kept in stock, it would be well to order it some days before it is desired for use. The copper carbonate should be of the "precipitate" form, and is worth at retail about sixty-five cents per pound. The ammonia should be of a strength of 22 Baumé, and should be procured in a glass or earthen vessel and kept tightly corked, preferably with a rubber cork.

Four ounces of the copper carbonate and one gallon of ammonia will be sufficient to give about fifty large or seventy-five medium-sized trees one

thorough spraying. As four or five treatments will be needed for a thorough application of the remedy, the amount of the materials required for any given orchard may be readily computed.

The best formula that can be given in the present state of our knowledge is to dissolve one ounce of the copper carbonate in one quart of ammonia, and dilute this, when ready to commence the application, with twenty-five gallons of water.

WHEN TO MAKE THE APPLICATIONS.

In the experiments made the past season in Mr. Hatch's orchard the first application was made after the petals of the flowers had fallen, and when the young apples were slightly larger than peas. But it is the opinion of Mr. Hatch and myself that one spraying before the flowers had opened would have proved beneficial. I would recommend, therefore, one treatment just before the flowers open, a second after the petals have entirely fallen, and others at intervals of two or three weeks until midsummer, or after, if the latter part of Summer should be wet.

APPARATUS FOR SPRAYING.

For applying the liquid to the trees, a force-pump, to which is attached a few feet of hose, fitted at the end with a spraying nozzle, will be needed. Excellent pumps are now made by the larger manufacturers expressly for spraying purposes, fitted with all necessary attachments, and costing $10 and upwards. Smaller pumps, which would answer fairly well for a few trees, may be had at from $2 to $10 each.

The same pump which is used for treating the trees for the apple scab may, of course, be used for applying poisons for the codling moth and other insects. Unfortunately it will not be prudent to add the copper carbonate solution to the same water that is used in applying Paris green or London purple, as the ammonia renders the arsenic more or less soluble, and thus the latter would be liable to injure the foliage. But if applied a few hours in advance of the water containing the arsenites, no harm can result from this source.

SUGGESTIONS FOR FURTHER EXPERIMENTS.

The time at which the applications should commence, the number that should be made and the amount of copper carbonate to be used to accomplish the greatest benefit at the least cost, remain to be settled by experiment.

The most practical remedy for the apple scab must be one that may be applied in the same water with Paris green or London purple without thereby endangering the foliage. It is the opinion of our station chemist, Dr. Babcock, that not only the ammoniacal copper carbonate, but the sodium

hyposulphite and the sulphides of lime and potash, all tend to render the arsenic of Paris green and London purple soluble, and hence can not be wisely used in connection with these poisons. The copper carbonate, however, which in the ammoniacal solution is the beneficial agent in preventing the apple scab, does not have this effect when used without the ammonia. The question therefore arises, Is the ammonia solvent necessary?

I have recently made some tests with a sample of commercial precipitated copper carbonate, and find that its state of division is such that it remains suspended in water rather better than Paris green, and so may be applied by any apparatus that successfully distributes the latter. It apparently adheres to the foliage nearly or quite as well, when applied in simple suspension, as in the diluted ammoniacal solution.

I recommend, therefore, that those who spray their apple trees for the prevention of injury from the codling moth, make the experiment in a portion of the orchard of adding the precipitated copper carbonate to the water, at the rate of an ounce to twenty-five gallons. No harm to the foliage can result from this measure, while we have every reason to expect that much benefit will accrue in the prevention of the apple scab.

University of Wisconsin, Madison, Wis. E. S. GOFF.

NOTES ON NEW FRUITS.

HUBBARDSTON'S Nonsuch seems steadily to be growing in favor as a valuable market apple. One party, having quite a large crop the past year of fine quality, sold them at nearly double the price of ordinary sorts.

The MILDING, which is one of the few new sorts sufficiently hardy enough to thrive in the extreme north, where the Baldwin winter-kills, seems fair to become one of our standard varieties of fine colored apples. It bears young with annual crops, fruit of good size, beautiful color and fine quality.

The LONGFIELD, a Russian variety recently introduced, commends itself on account of the tree being very hardy and very productive, while the fruit keeps well into March.

VERMONT BEAUTY PEAR. This exceedingly beautiful variety seems to be steadily growing in favor and evidently possesses many points of excellence. The tree is a strong stocky grower, good bearer and very hardy. This variety is highly commended by Dr. Hoskins, of Vermont.

HYNES' SURPRISE PEACH is a valuable early variety very hardy in fruit bud, productive and entirely a free stone, ripening immediately after Early Rivers.

HORTON RIVERS is believed to be the most valuable early peach yet brought into notice. It is a seedling of the Early Rivers. The original tree bore a few specimens in 1887, a larger number in 1888, and one and one-half bushels in 1889, the first of the fruit ripening in 1889 about August 15th. The flesh is white, solid and very juicy, very strongly resembling the Early Rivers in style and size, but is a perfect free stone. In foliage and hardiness of fruit bud, its parentage is marked.

The HARRIS APRICOT is attracting considerable attention on account of its hardiness and productiveness. It is a seedling which has now been fruited with uniform success for several years, resembling the Early Golden in habit and ripening, but of larger size. It ripens this last season on July 20th.

The ERIE BLACKBERRY has proven to excel everything in its line. One acre is known to have yielded 3,000 quarts.

BUBACH STRAWBERRY. A very vigorous variety, free from rust, very productive of large bright scarlet fruits. Soft; quality No. 1.

HAVERLAND. A fine variety, of distinct leafage, very light green, a strong grower, multiplies by runners very rapidly. Abundant bearer of very attractive fruits; berries all large with long neck, soft; quality No. 2.—*From the Proceedings of the Western New York Horticultural Society for 1890.*

STRAWBERRY SHORTCAKE.

TAKE one quart of sifted flour, pinch of salt, one large cup of sour cream, half teaspoonful of soda, mix and roll out like pastry, bake in two large cakes, take out of the oven, split them, make four halves, spread each half with butter, and place between a thick layer of strawberries and sugar, reserving the upper crust of one cake to cover the other three. Then place in the hot oven for five or ten minutes, and serve smoking hot.

CRYSTALLIZED FRUIT.

TAKE slices of orange or clusters of grapes, or any other fruit desired, and dip them first in white of egg beaten to a froth, and then in pulverized sugar. Lay a sheet of paper in a pan; spread the sugared fruit on it, set in a cool oven to dry, then keep in a cool place. It is quickly done, and is a pretty variety for the lunch table.

GRADING FRUIT.

THE proper grading of fruit has much to do with its selling and keeping qualities. The term grading, as generally used, is applied to size alone, but assorting as to color and ripeness is no less important. Much of the fruit found in our home markets is of the most indifferent sort and is packed in a slip-shod, go-as-you-please manner. One green or ill-shaped peach will detract from a whole box, no matter how fine the others may appear. One soft apricot packed iu a box intended to keep a few days may lose you the the profit upon the whole box. A green or soft strawberry in a basket when seen by a buyer will lead him to believe that there are others of the same sort further down in the basket.

True, it is some trouble to grade your fruit in this way and it requires skill and decision in the packer. It should be remembered, however, that we are in the business to make money and that trouble must be expected and competent help employed, if we are to hear the clink of gold in our pockets. If fruit is properly graded, facing is honest and legitimate; but only too often is it used as a cloak by which to filch a few cents from the unsuspecting public. In some of our markets you hardly dare buy a box of berries or fruit of any kind without first removing the top layer to see if the remainder is trash. This is plain talking to the "honest farmer," but it is true and the prevalence of this evil has many times curtailed the demand for fruit by disgusting the consumers and has brought disgrace upon fruit growers in general. There is but one way to pack fruit profitably and honorably, if your reputation is of any value whatever. Grade it; grade it carefully for size, color and ripeness. Every right-minded grower, packer and shipper should insist upon trio grading, and should stamp all fruit shipped as such, so that the purchaser may be certain of the quality of his purchase. In this way honest growers and packers can, in a measure, protect themselves and the public against those who are unscrupulous and careless in their methods.—*California Fruit Grower.*

BLIGHT IN PEAR TREES.

IN my correspondence in last September's HORTICULTURIST, I told you that blight had affected the pear trees rather badly. Little did I think then that it caused such destruction among them. I then thought that it took somewhere in the branches, and that if we were to cut it off some distance below the discoloration and apply linseed oil

to the cut, it might possibly save our trees; but alas! the disease I find is seated below that, and I don't think there is any remedy. The beginning of last month (April) I went and examined my trees, and I found quite a number totally black just where the large branches start from the stock, while the top seemed green and the buds swelling nicely.

The Flemish Beauty are most affected, I cut down seven large trees of this variety and about half of several others. I have two of Manning's Elizabeth dwarf trees dead, a branch of Souveni de Congress, also branches of a seedling, and small branches of the Bartlett.

The fruit of the Flemish Beauty and Manning's Elizabeth seemed to escape the severe frost last year the best of any, but the blight took in them the worst. In my opinion it was the frost of the nights of the 22nd and 28th of last May that caused this blight; before that we had very fine open weather. I find it a very great loss on the whole; last year almost all our fruit destroyed and now so many of our pear trees gone. I have trees with stocks from five to eight inches in diameter, with tops over twenty feet in diameter totally gone, and I don't doubt but a good many others will die.

The Vergennes Grape received last year got cut off as well as the others, but it sprouted again, and now I see it is looking pretty well, but small.

The fruit prospects for this year seem to be very good, the cherry, pear and plum are heavily loaded with blossom buds. Apples don't appear to be so thick on some varieties. We have had a very fine Spring, I hope our fruits will not suffer this season.

Goderich. WALTER HICK.

NOTE BY EDITOR.—This mysterious disease, the pear blight, was very destructive last season, especially on some varieties. The Duchess dwarf suffered exceedingly, and even the Bartlett lost much wood. This variety has one advantage over others however, in that it is usually affected in the branches and not in the trunk, and when cut back below the discoloration, will produce fresh growth and a new tree in a short time. The Flemish Beauty, the Osband's Summer and the Vicar act differently, and often blight in the trunk, and if much cultivated soon blight to death. At Maplehurst, Bartletts planted twenty-five years ago are still thrifty, but not a Flemish Beauty or Osband's Summer of that age, unless where grown in sod.

We do not think the frost caused the blight, for it is often quite severe without any such cause. Indeed it has been plainly shown by scientists that a small microscopic organism or microbe, which is far too small to be seen with the naked eye, is the real cause of this disease. These microbes are easily carried about in the atmosphere, and finding entrance through the stomata of the leaves into the juices of the tree, where they soon cause disease and death.

FERTILIZERS FOR FRUITS.

WRITERS in the rural press tell what little effects they have had from applications of bone dust or other plain phosphates in the orchard, vineyard or small fruit patch. This is very natural. All fruits and fruit crops require more potash than phosphoric acid, and even where they apparently are doing well, they will usually do still better when more potash is applied. For this reason, bone dust and the like *alone* are not what is wanted. Add plenty of unleached wood ashes, corn-cob ashes, cotton-seed hull ashes, muriate of potash, or kainit, and you will not be likely to complain of the ineffectiveness of the application. Let fruit growers understand this thoroughly. Simple phosphates are no manure for fruit crops, and never will be. Potash, on the other hand, in any of the forms named, cannot well be applied in too large doses for fruits. Lots of potash makes bush and tree fruits firmer, sweeter, better in flavor, renders the wood more resistent to wind and weather, and is a benefit to them generally, and this without a single drawback. Potash also improves the quality of potatoes, beets, turnips, etc.

This is now pretty generally recognized. The way that our leading fertilizer men put up their various brands for special crops is a pretty good indication of what they think about this subject. There is, for instance, Mr. Mapes' "Fruit and Vine" manure. An average of several analysis gives it 2·50 per cent. of nitrogen, 10·20 per cent. of phosphoric acid and 10·71 per cent. of potash. Evidently Mr. Mapes (and he is most excellent authority) thinks that potash is the most important of the plant foods in a fertilizer for fruits. The only crop for which he uses a still slightly larger percentage of potash is tobacco. The demands of this crop for potash are simply enormous and even ruinous. The soil in Virginia and elsewhere, impoverished by long cropping with tobacco, will not be restored to fertility by applications of simple phosphates. Potash alone can help them. For soils in this condition, let our Virginia friends try muriate of potash or kainit, or cotton-seed hull ashes, etc. Of course, barn-yard manure in large enough quantities will also have good effect.—*Joseph, in Farm and Fireside.*

THE HOUSE SPARROW.

I NOTICED recently, in a local paper, an extract from an Australian paper, condemning the English sparrow as a nuisance, and was to the effect that the insect pest there was increasing to an alarming extent, and the cause was attributed to the decrease of native insectivorous birds,

which had been driven away by the English sparrow. The same complaint has frequently been made in this country.

Now from my personal observation I am satisfied that this is an error, for I never saw a greater variety of birds in Toronto than there is this year, and there never were more sparrows, still the sparrow is at the root of the evil. It has been claimed by some that the sparrow is an insectivorous bird; this is not the case, excepting when raising their young. A close observer cannot but have noticed that, as soon as the first brood is hatched, the parent birds would be seen running along the house-eaves and such like places in search of spiders, with which they feed their young, and on nothing else, so long as the supply holds out. What is the consequence? There is to-day not a spider to be seen in the city of Toronto, that is accessible to the sparrow. Here is the whole secret why insects are increasing: their most deadly enemy, the spider, is being exterminated by the sparrow, and the whole host of insectivorous birds cannot do the work that the spider has been doing, silently fighting on our side, slaying its thousands and tens of thousands of our most troublesome insect enemies.

The sparrow must go, and with him the mercenary taxidermist—the latter, I am sorry to say, few towns are now without their quota—or the Horticulturist will have to give up in despair all attempts at fruit culture.

Toronto, Ont. J. NEWHALL.



COBEA SCANDENS.

LIKE many other of our cultivated floral plants, this one hails from Mexico, and has been known since Barnabas Cobo spent fifty years of his life as a Jesuit missionary in Mexico and Peru. He being also quite a naturalist, this interesting plant was named in his honor. At one time it was rarely met with out of conservatories, where it formed a strong growing climber, but it being found to be equally well as a summer climber out of doors, it has for a good many years now been used for that purpose. There is a variegated variety quite showy in its foliage, which can only be raised from cuttings, but the common kind can be raised both ways, cutting or seed, with equal facility. The general method, as much the most simple, is by seed, which if sown in the greenhouse on a hotbed early in the spring, gets good-sized plants by now or planting time. It is one of the most rampant growers under favorable auspices, hence can be used safely where a large space is designed to be covered. The flowers are large cups or campanulaceous in shape, and come freely all the summer long.



FIG. 53.

The seeds are of some size, thin and flat, and gardeners have found that they grow the most freely set on edge and covered with about one-fourth inch of soil. For present planting, however, it is better to purchase plants of some florist than to depend upon seed at this late season.

MAKING AN HERBARIUM.

A PLEASANT way for young people to improve themselves in botany during the summer vacation is to make an herbarium or a collection of pressed wild flowers. As it requires considerable skill and patience to dry these fragile blossoms of the woods and fields, the points to attend to

are to dry the specimens quickly, thoroughly and with a pressure that will not crush them. A good method is to place each specimen in a sheet of brown paper and interpose several empty sheets between each two of those filled. Then place them in the press—a napkin press if one has one; if not, a few heavy books may be used. Then press them gently for the first day or two—just enough to prevent the leaves and flowers from shrivelling. When the papers are quite damp, separate them and spread them on the floor of a room where they can dry a little. Return them to the press, increasing the weight. Repeat this daily until the flowers are quite dry. They can then be laid away or pasted into blank books, classified or numbered.

HOW TO PRESS FLOWERS.

A WRITER in *Gardening Illustrated* uses cotton-batting instead of bibulous paper in which to place fresh flowers for pressing. "I have had," he says, "much experience in flower drying, and I never found any kind of paper answer, however carefully used, and for the following reasons: First, the paper, of any kind—is, however lightly pressed, too hard a substance to touch the delicate bloom or surface of the petals of any flower, and at once injures the tender skin, causing the liquid to exude and saturate the leaf, which tends to decay it, as well as to injure or destroy the color. Secondly, paper does not absorb the natural moisture rapidly enough, but remains damp about the flower, thus allowing the air to pass through, while damp air injures both color and leaf. I have tried a great many different ways, and one only has proved really successful—viz., the use of cotton wool. I take a small folio, in which I have folds of newspapers, four sheets thick. Between each of these folds I place two sheets of soft, fine clear white cotton wool. I have this out with me, and as I gather the flowers I want to press, I lay them out carefully between the sheets of cotton wool, filling the sheet up as quickly as possible. I close it up in the newspaper, carefully turning it up all round the edges. When I get home I take the packets out of the folio, and place them in large books, under good pressure, and leave them as long as I deem necessary. Some flowers need a much longer time—those of a fleshy nature, for instance. The great secret is not to allow the air to touch them (by no means look at them to see how they are getting on) until they are quite dry. I have scarlet Geraniums, Violas, etc., which have been done more than two years, as fresh in color as at first, although in constant use on candle shades."



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

A SURPLUS OF FRUIT need not be expected very soon, if we take the estimate given in a late number of the *American Garden* concerning the greater rapidity of increase in population in the cities than in rural places. The statement is as follows: "In 1850 we had eighty-five cities of an average of 35,000 inhabitants. In 1860 we had 141, and in 1870, 226 cities. A hundred years ago one-thirtieth of the people lived in towns; in 1860 one-sixth, and in 1870 one-fourth of our people were town dwellers."

FRUIT GROWERS' INSTITUTES are asked for by the fruit growers in New York State. Farmers' Institutes have been of such great value to agricultural interests that it is claimed that Fruit Growers' Institutes might accomplish similar benefits in developing the fruit industry, if placed in the charge of experienced and successful fruit growers. A special appropriation from the State is expected for their organization. It is a question whether this plan would have any advantage over ours of working in connection with the already existing Farmers' Institutes. The farmers of our country are the people who need to be instructed in horticulture as a branch of agriculture, and if a fruit growers' institute were called many of our farmers would think themselves left out.

A MODEL PEACH ORCHARD IN MICHIGAN.

IN the March No. of the *American Garden* Prof. Bailey, of Cornell, writes an article with regard to Michigan practices of peach culture, and says that the pruning consists in thinning out the small wood each year, that the shortening-in system is not practiced in Michigan, nor can he see any important reason for employing it when trees are properly grown. He also gives three illustrations showing model peach trees trained in what he calls the model system, at various ages.

Now, we are compelled to say that, after twenty-five years' experience in peach growing in the Niagara district, we believe we have made considerable improvement on this method of pruning. We find that by growing peach trees as described, without shortening-in, there is soon very little new growth except at the tips of the upper branches, the lower and interior limbs die out and the tree itself loses its vitality at an early age. On the other hand, by a vigorous shortening-in of one-half of the new growth every year, with a still more severe cutting back of the leading shoots, abundance of young and vigorous growth is continually produced, giving a larger amount of bearing

wood and lengthening the duration of the tree by many years. If anyone is doubtful of these results let him faithfully try the experiment.

Mr. Bailey adds that the following varieties are those which find most favor with the Michigan growers : Hale's Early, Lewis Seedling, Mountain Rose, Barnard, Snows' Orange, Yellow Alberge, Jacques' Rareripe, Switzerland, Hill's Chili, Golden Drop and Smock.

CHOICE GRAPES.

A LIST of choice grapes is given in the *Garden and Forest* for April 30th, by Mr. E. P. Powell, of Clinton, N.Y. His list of black grapes is Moore's Early, Worden and Herbert, and of these he places the Worden as No. 1 for market. He sees no use of planting the Concord any longer because the Worden is equally hardy, prolific, and is of better quality. It is sweet, as soon colored, hangs well on the vines, and is a better keeper than the Concord. For late black he places Herbert ahead of Wilder. Of red grapes his choice is Brighton, Gaertner and Salem. His list of white grapes is Diamond, Hayes, Niagara and Duchess. Of these he places Diamond at the head of the list, as it has been tested and has received no strictures on its quality, growth, habit or bearing qualities. He ranks the Niagara with the Diamond in value, but discards the Lady because it is so poor a cropper.

HARDY APPLES.

THE late bulletin of the Iowa Agricultural College contains some interesting notes on hardy fruits by Prof. Budd, some of which we will quote. Speaking of *Summer Apples* he says :

"The SWITZER is a very hardy tree up to the 44th parallel on dry soil and in airy positions. It is fully as large as the Fameuse, as handsomely colored and fully equal in quality. It is ready for use much earlier than the Fameuse. The BOROVINKA is like the Duchess in tree, foliage and fruit, but the fruit averages larger and keeps fully a month longer. The YELLOW TRANSPARENT is valuable for home use or market in localities not much subject to blight. The fruit is earlier, larger, handsomer and better than the old Early Harvest. The BLUSHED CALVILLE will prove more valuable than the Yellow Transparent over great areas of the West. The tree is much hardier, more nearly free from blight, the fruit is about as early, as large in size, is handsomely blushed and we think it is less perishable and better in quality. Of autumn apples, the LONGFIELD is a good tree, but not much hardier than the Wealthy. It is an annual and full bearer, of medium sized, blushed yellow fruit of excellent quality. The tree is an abundant bearer and excellent for both cooking and dessert purposes. The HIBERNAL is a true iron-clad and a continued heavy bearer. The fruit is large, even-sized, handsomely colored and of best quality for culinary use. Of winter apples, APORT is proving very valuable. The fruit is large, smooth, handsomely colored, fine grained, mildly acid and good for any use. If picked when beginning to color, it colors perfectly under cover and keeps well into winter even in southern Iowa The ANTONOVKA will be very valuable on ridges wholly without shelter, north of the 42nd parallel. On black soils in sheltered spots it is apt to blight. SCOTT'S WINTER, a Vermont apple, is as hardy as the Wealthy and an excellent bearer. The fruit is as large and handsome as the Winesap, a better keeper, an excellent cooker, and when fully mature a fairly good dessert fruit.

McMAHON'S WHITE APPLE.

As some references have been made to this apple, both in our journal and report, it may be well to note that it was the apple which attracted most attention at a recent Horticultural Convention in Madison, Wisconsin. Mr. Hatch, a well-known orchardist in that State, raised 300 bushels of this variety last year, and pronounced it hardy in Wisconsin and very profitable. It is described as large, round-obovate, yellowish-white, quality good, flavor pleasant sub-acid-flesh white and very tender.

THE LE CONTE PEAR.

MR. S. MILLER, writing in *Popular Gardening*, speaks unfavorably of the fruit of this pear for our northern commercial orchards. Our experience agrees with his. We had it in bearing last year and found the fruit poor in quality and by no means attractive, especially when compared with other pears of its season. Another objection is that the tree is very subject to blight, even when grown from cuttings.

This, like all other novelties, is being hard pushed by the nursery agent. Fruit growers, therefore, need to be posted with regard to the real quality of these new fruits and their adaptability to our climate. The Le Conte pear is particularly adapted to the Southern States and can be grown there with great profit.

COMPOSITION OF THE STRAWBERRY.

THE general composition of the strawberry is tabulated by the Tennessee experiment station as follows:

Water	90.52	per cent.
Dry matter	9.48	"
The dry matter contains:		
Glucose	4 78	"
Cane sugar	0.58	"
Free acid, as malic	1.37	"
Ash	0.62	"
Crude fibre	1.55	"
Crude protein	0.99	"
Non-nitrogenous extract	5.76	"

A LARGE FRUIT FARM IN ENGLAND.

AT Toddington, in Gloucestershire, is the name of Lord Sudeley's estate, on which is planted one of the largest orchards in Great Britain. The extent of land devoted to fruit culture is 500 acres. The whole is kept as clean as a garden, every tree and bush receiving proper attention. Hundreds of workmen are employed and an enormous amount of capital invested. In the work of cultivation there is a practical foreman engaged for every forty acres of plantation with a staff of men under him. The fruits grown are chiefly plums, currants, raspberries and strawberries with a few apples and pears.

It would appear that there were greater difficulties in England in the way of producing good fruit out of doors than we have in Canada, while the methods of cultivation are all much more expensive; but no doubt with a wealthy landowner like Lord Sudeley, the question of profit is less prominent than it would be with us.

FRUITS AFFECTED BY THE CURCULIO.

WHILE everybody is well aware of the enormous injury to our plum orchards caused by thecurculio, few people know the extent of the harm effected by it upon our apples and pears. Entomologists have shown us that the curculio may come to maturity in apples, and the numerous misshapen specimens of apples and pears which have to be thrown out in packing seasons are the proof of the extent of the mischief made by them. The Duchess apples are particularly subject to them, and for that reason particularly needs spraying early enough in the season to destroy the parent beetle. A Duchessapple tree at Maplehurst produced no fruit fit for market for many years owing to the curculio, every specimen being knotty and ill-shaped from punctures by the curculio, but since this tree has received a regular spraying there have been very few worthless specimens produced.

The Prunus Simoni appears to be notably free from the attack of the plum curculio. Professor Budd states that he has never known the fruit to be so injured.

THE STRIPED CUCUMBER BEETLE.

MR. C. M. WEED says in the *American Garden* that the only way to prevent injury is to fence out the insects. The simplest method is that of laying a piece of thin cloth over the hills before the plants are up, covering the edges of it with loose earth. To hold the cloth up in the middle, he takes two pieces of wire, puts their ends into the ground like the centre arch of a croquet ground.

Question Drawer

BUDDING STONE FRUITS.

56. SIR,—Will you kindly inform me at what stage of growth the stone fruits should be budded? And where can the scions be obtained?—A. BROWN, *Bethel, Ont.*

The time for budding the stone fruits differs with the different kinds; thus the plum is usually done about the middle of July,

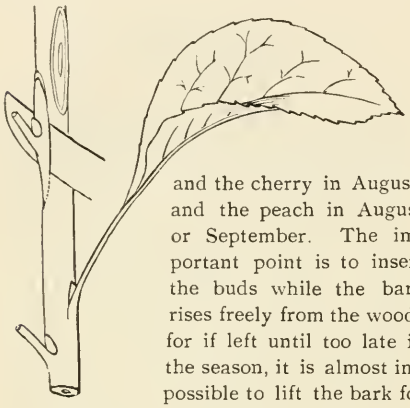


FIG. 53.

and the cherry in August, and the peach in August or September. The important point is to insert the buds while the bark rises freely from the wood; for if left until too late in the season, it is almost impossible to lift the bark for the insertion of the scion. The plum is one of the most difficult of the stone fruits to bud with success, unless the right time is chosen, which should be as early as the buds are sufficiently firm to be used, or about the middle of July. Plum stocks for grafting are grown from the pits by planting them in drills, as soon as gathered, about an inch and a half deep. These, at one year old, are transplanted into nursery rows and budded the following summer.

The peach stocks are usually budded during the first season of growth, and are easily done. Sometimes the peach is budded on the plum to give it greater hardiness; and *vice versa*, the plum on the peach for easier success, but such trees are less valuable then when budded on plum stocks.



FIG. 54.

The whole process of budding is shown in our illustrations, fig. 53, showing the way in which a bud is cut from the stick ready for inserting; and fig. 54, shows the further process of cutting, lifting the bark of the stock, inserting the bud and tying it with bass wood bark, which completes the whole operation.

Sticks of buds are best cut from young trees so as to avoid having blossom buds instead of fruit buds. Any nursery man will sell sticks of buds of desired varieties at a reasonable price.

KELSEY'S JAPAN PLUM.

57. SIR,—Has the Kelsey Plum (Japan Apricot) been successfully fruited in Ontario? Would it be likely to succeed if worked on our native red plums, or on the Lombard?—A BROWN, *Bethel, Ont.*

We have no reports as yet of this plum being fruited in Ontario, and we do not think it has been fully tested anywhere in our climate. No doubt it could be successfully budded on any of our native or cultivated plum stocks.

THE HOOSIE PEAR.

58. SIR,—What is your opinion of the Hoosie Pear?—H. HAYES, *Springfield.*

We do not know of any fruit grower in Canada who has fruited this pear. It is one of those novelties which may or may not be as valuable as reported. The Hoosie is a seedling originating in Massachusetts. The fruit is described as large, greenish yellow; flesh, fine grained, melting juicy, with a rich almond flavor, in quality ranking as best. Tree hardy and an abundant bearer. Ripens in the Fall.

NEW VARIETIES OF GRAPES.

59. SIR,—How do they get the new varieties of grapes?—H. HAYES, *Springfield.*

New varieties of grapes are produced by sowing the seeds of kinds having qualities of merit. In order to secure certain desirable qualities, resort is had to what is known as hybridization; that is, the flower is fertilized with pollen from some other variety, and the seeds resulting are the ones sown.

STOAT'S MONARCH RHUBARB.

60. SIR,—I have expressed to you two stalks of Stoat's Monarch Rhubard, which weigh four pounds, are two feet long. Will you kindly give me your opinion as to the merits of sample as to weight in proportion to size, *fineness of grain*, easiness of being pulped, flavor and accidity. I may state that it has been grown to some extent in this town for the last two years, is highly prized, and it is claimed by some that it takes less sugar.—A. MORTON, *Brampton*.

This is a most remarkable variety of rhubarb. The stalks were measured and weighed by us, and found to be as follows: Weight, two pounds; length, two feet; width, two and a half inches; circumference, six and three-quarter inches. The grain is finer than that of Linnæus or Victoria, and the acidity less, and it is easier pulped than any variety we know of. It looks very attractive on the table, holding its shape and yet so tender that it melts in the mouth. A good idea of the size of the enormous stalks may be had, when we state that one of them afforded a generous allowance of sauce for tea in a family of seven. Mr. Morton informs us that he imported this variety of rhubarb from Glasgow, Scotland.

RHUBARB FROM LINDSAY.

61. SIR,—I send you a sample of rhubarb, grown at Lindsay. How does it compare with that grown in more favorable localities?—THOS. BEALL, *Lindsay*.

This is also a remarkably fine sample of rhubarb, equal in size to any we have seen grown in the Niagara District, but as our subscriber has not given us the name of the variety, it is not easy to compare it with other kinds with any degree of fairness. It has the appearance of the Victoria, of which also the stalks are very large. The stalks of this sample average three feet in length, and the largest measured nearly two inches across its widest part. But it weighed no more than the stalk of Stoat's Monarch above described, while the flavor is much inferior, more acid, the pulp woody, and in every way it is less valuable than the latter.

SEED SOWING.

62. SIR,—Will you be kind enough to inform me through THE CANADIAN HORTICULTURIST, how to save the seed of the Strawberry, Gooseberry, Currant and Raspberry, and when to plant the same; also when to plant Tulip, Gladioli and Hyacinth seed. I saved some of the latter last Fall and planted it in the hot bed this Spring, but not one single plant came up? By answering the above you will oblige, J. LAWLEY, *Windsor*, BOX 246.

The seeds of Strawberries, Gooseberries, etc., are washed from the ripe fruit, merely dried on sheets of paper, and then sown in the open ground, afterward sifting over them an inch of light soil. In the Fall the little seedlings are transplanted and may be expected to fruit in about three years thereafter. Of course, this method of propogation is little used, except for the purpose of raising new varieties.

THE TETOFSKY.

63. SIR,—How long has the Tetofsky been in Canada?—DR. H.

About twelve or fifteen years.

Open Letters

AUTOBIOGRAPHY OF AN APPLE.

A Small Boy's Composition.

I am an apple.

The first thing of me is the flower. The next thing the flower dropt off and then you will see a little green apple; and then a great big round apple.

Then the men come round and pick me and send me away in baskets and put me in a big thing where I get all joged up. After a long while something put me in a red place, and—I will tell the rest of the story. They put him in a man's mouth and he ate him up.

DOCTOR NICHOL AND THE POEM "HOME."

SIR,—Perhaps you have noticed the death or Dr. Thos. Nichol, M.D., LL.D., D.C.L., of Montreal. He was a dear friend of mine. He called on me one day, just as I had written "Home." He read the lines, and I have since felt it cruel of me feeling pleased to hear him say, "I wish I had not read that, it makes me homesick."

GRANDMA GOWAN,

Mt. Royal Vale.

HOME.

(*For the* CANADIAN HORTICULTURIST.)

THE soft wind scatters odors sweet,
The Fireflies glitter in the air,
As on my moon-lit garden seat,
I breathe my evening prayer.

Oh how I love this solitude!
When mind by care oppressed,
And in sweet nature's quietude,
My spirit findeth rest.

Memory brings back long summer days;
I live the past all o'er again;
Again I climb the heathery braes,
Again I'm back in my Scottish hame.

I hear the echo of the Falls,
I see old Tintac's cloudy peak;
I hear the Cuckoo's plaintive calls,
And the Woodpecker's eager beat.

I hear the Laverock in the lift;
Oh thou Heaven-taught bird divine,
Why am I thus, of thee bereft?
Why came I to this distant clime?

Why did I cross the icy bar,
Where winter holds his sway so long?
My Scottish home is fairer far;
Land of beauty, land of song.

A rapture that I cannot name
Comes o'er me as my years grow brief;
Oh why does MEMORY still remain
Twining around my heart a wreath
Of hawthorn bloom and heather bell?
Lethe, with all its mystic powers,
Can never from my brain despel
The fragrance of my mountain flowers.

GRANDMA GOWAN.



Yours Sincerely
Colfax Record.

THE

Canadian Horticulturist.

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SOME PROMINENT CANADIAN HORTICULTURISTS—XI.

THE LATE JOHN CROIL, OF AULTSVILLE, ONT.

FRIEND after friend departs,
Who hath not lost a friend?
There is no union here of hearts
That finds not here an end.

THIS year seems full of calamities. Railway disasters, cyclones and the grip have mown down thousands of our fellows, and among them some whose loss is keenly felt by all students of horticulture.

The Society of American Florists has lost a prominent member in Mr. Peter Henderson; the Western New York Horticultural Society its first and only president, Mr. P. Barry; the Montreal Horticultural Society its worthy vice-president, Mr. Chas. Gibb, and now our own Society has to mourn the loss of one of her highly valued directors.

Mr. John Croil was a native of Glasgow, Scotland, where he was born in the year 1824. He received a good classical education at the Grange Academy, Sunderland, England, and at the age of nineteen came to Montreal, where for four years he engaged in mercantile life. But finding the close confinement unfavorable to his health, he decided upon a country life,

and purchased a farm in Osnabruck, situated on the banks of the St. Lawrence, and built himself a home which he appropriately named "Sunnyside." Here he planted six acres of an orchard, largely of the Fameuse, which became noted as one of the finest in the section, and this, with his garden, gradually engrossed his attention, until of late years. His chief delight was in the pursuit of horticulture. He has been a director of our Association since the year 1877, during which time he has worked faithfully in the interest of our department of industry. His frequent and spicy contributions to this journal and to our reports are a proof of this statement. Only a short time before his decease, he agreed to give a paper at our Summer Meeting on the "Use of Artificial Fertilizers in the Garden;" but on the 26th of June his work in his terrestial garden ceased, and he was called to take his place among the flowers and fruits of the Celestial garden.

Dr. Ault, of Aultsville, writes:—"His illness only lasted three days. He died of inflammation of the bowels. He had been working very hard, getting his garden in order, in fact beyond his strength, so that he rapidly failed under the attack."

Though he was a modest man, and when last November a request was made of him for some notes of his life for use in our sketches of Canadian Horticulturists, it was only the briefest that he would give. He said, "You say, send me some notes of your life, and I will put *it* in shape. Of course *it* refers to the life. Quite kind. All I can say is that it will take all your complimentary pen can do to make it worthy of even the smallest public notice; the only redeeming clause in my history, perhaps, being the consciousness on my part of work, no doubt well intended, but very imperfectly done."

In May last, Mr. Croil sent us some lines on "Sunnyside," written by the Rev. J. J. Cameron, M.A., of Woodlands, saying that he considered them altogether too flattering to himself.

We cannot do better than close this sketch by quoting the lines referred to:

O H, Sunnyside! Sweet Sunnyside!
Thy charms I would declare,
As nestled by St. Lawrence' side
You breathe its bracing air.

Bedecked with varied hue, thy flowers
Dispense their fragrance round,
While feathered songsters from thy bowers
Chant forth melodious sound.

Thy trees in graceful beauty wave
Before the gentle gale;
Thy verdant banks the waters lave,
Refreshing sea and dale.

Thy grounds are charming to behold;
Thy shaded walks I love;
Thy beauties tongue can scarce unfold;
Thy image heaven above.

Thy happy home, embowered 'mid trees,
An old historic pile;
'Mid winter's storm and summer's breeze
The passing hours beguile.

As time has flown, what joy and gloom
Thy ornate walls have seen;
What hallowed mem'ries haunt each room
Of all the past has been!

What songs of joy were often sung
To cheer the social hour,
While joyous notes of music rung
With thrilling, soothing power.

What hours of sorrow, too, were passed
When, worn with anxious care,
The heart at last found peaceful rest
In humble, earnest prayer.

Some have come, and some have gone,
Their forms no more we greet; [won,
Some have run the race, the crown they've
God grant they all may meet.

Fair Sunnyside! Loved Sunnyside!
God bless its honored host!
May peace within thy walls abide,
Fair virtue be thy boast.

Long may our genial friend enjoy
The home his hands have reared;
May heaven's sweet peace without alloy
By ties and time be shared.

THE SUMMER MEETING.

THE old town of Niagara, once of considerable importance, both from a civil and a military point of view, but latterly of little importance owing to the removal of the county offices to St. Catharines, is now once more coming to the front as a fruit district. Having received from here the first president, it was only fair that the Ontario Fruit Growers' Association should hold one of its meetings in this old historic town.

To a stranger the approach is full of interest, whether you come by boat from Toronto past those two forts which, like sentinels, stand at either side of the river, to the old pier; or by the "Observation train," down the American side, by a cut along the rocky bank of the river; or on the Canadian side, down the mountain near Queenston, where you have one of the loveliest views imaginable of this whole fruit section, with the town in the distance at the angle where the lake and the river meet, and, near at hand, the monument to the bravery of Sir Isaac Brock, who so heroically fell in the defence of his country.

The officers of the Association were received most kindly by the officials of the local Fruit Growers' Association; and the president of that society, Major Courneen, made us an address of welcome in the most suitable terms. Nor were they satisfied with mere words of expression of welcome, but they furnished enough carriages to give us all a two hours' drive among the peach orchards of that section, which are far more extensive than our preconceived notions had led us to expect. It appears that in the township of Niagara alone there are at least four thousand acres of land devoted to peach culture, or about one-fifth of the whole amount of arable land in the township. So well adapted indeed is this land to peach culture and so little have the trees suffered with either blight or yellows, that it is no wonder that little else in the fruit line is planted, and that almost every farm is being devoted to the peach as the most profitable industry. Among others we were shown the fruit farm of the late R. N. Ball, once an enthusiastic member of our Association. He had planted over sixty acres to peaches, and this is now being managed by Mr. Leslie Nelles, of Grimsby. The crop all through will be very light this year, but should a year of full bearing

come, it is doubtful whether sufficient boat accommodation could be secured for the immense number of baskets which would be shipped.

Among the gentlemen who received us cordially, and showed us through their gardens, were Mr. Pafford, the Mayor, and Archdeacon McMurray. The latter, though he has attained the honorable age of four score years, is still an enthusiastic member of our Association, and a most successful gardener. In his garden he has about a half acre of grapes, many being foreign varieties, such as are usually grown under glass, which yielded him last year the sum of $150.00. He gives them protection in the winter by laying them down and putting a few shovels of earth over the young wood. Mr. Pafford has also had success with such varieties as the Black Hamburg, Golden Chasselas, etc., and even grows figs by giving them winter protection, cutting down to the ground each stem as soon as it becomes too stiff to bend over in the autumn. His fig trees had on many figs in all stages of growth.

One important work accomplished at this meeting was the Ontario Fruit List, which was referred to as in progress at our winter meeting. This has now been completed, as well as another of equal importance, viz: District Fruit Lists, giving the varieties of apples suitable for planting in the various agricultural districts of Ontario. These will be published in our next annual report, and also, if possible, copies will be sent to all the agricultural societies in Ontario, in advance of the publication of that report.

Mr. Billups, a well informed entomologist, residing at present at Niagara, exhibited a very fine collection of the Beetles, composing the family of Curculionidae, both Canadian and foreign. It surprises an uninitiated person to be told that there are hundreds of species of Beetles belonging to this one family. Mr. Billups gave us a life history of the plum curculio, and demonstrated that this insect continues its work of depositing its eggs during a large part of the summer, and therefore vigilance against its attacks should not be too soon relaxed. He was of the opinion that the effectiveness of Paris green against the curculio was mechanical, the parent beetle having a dislike for dust. He thought that road dust even might be effective in preventing the placing of the eggs upon the young fruit. The writer remarked that he had found hellebore even more beneficial than Paris green on the plum trees, those trees sprayed with the latter having dropped all their fruit, and those with the former having a fine crop still hanging. Mr. Billups maintained that the secret of its usefulness was probably the presence of a dried powder upon the fruit, and not its poisonous nature.

Many other interesting subjects were taken up, such as "How to make the best of ten acres of ground," "How to handle apples best for the British market," "Peach culture," "The Pear, its history and culture," "Humbugs in horticulture," "How to treat gooseberry mildew," "Profits

of grain and fruit growing compared," etc., all of which will appear in full in our next report. It will be our aim to place this report in the hands of the Minister of Agriculture at an early date, so that it may precede the other public printing, and thus reach our members at an early date, instead of coming out so late that many of our readers will be unable to give it attention.

THE APPLE CROP.

WEEK by week the prospect for apple growers is becoming blacker and blacker. The *Fruit Trade Journal* of New York city has an article entitled "The Ruined Fruit Crop," which, while deploring the scant crop of other fruits, particularly specifies the apple as being a great failure in New York State, and that in consequence a large part of the farmers, whose chief dependence was in their orchards, are much distressed, especially as this follows a year of a similar misfortune. The *Montreal Trade Bulletin*, under the heading "The Apple Crop," says that a buyer has just returned from the south, where he went in search of a car load of early apples, but so great is the failure in that quarter also that he had to return without being able to secure them. The same condition of affairs is reported from Michigan and other apple districts. *Popular Gardening* gives, in the July number, an estimate of the apple crop based upon reports received from the various States, and, using a scale in which 5 indicates a very heavy crop, 4 lower than the average, 3 average, 2 under average, 1 poor, and 0 a total failure, makes out the following as a very fair estimate for the whole country:

Apples, early	1·9	Plums	1·6
Apples, late	1·9	Quinces	1·9
Cherries	2·0	Raspberries	3·5
Grapes	3·4	Blackberries	4·0
Peaches	1·0	Strawberries	3·2
Pears, early	1·4	Currants	2·6
Pears, late	1·4	Gooseberries	2·7

From this it is evident that a very poor crop is expected on this continent, and, as the dropping of the fruit still continues, except perhaps in the case of the Northern Spy, there is little hope that the result will prove better than the anticipation.

Reports from England and the continent of Europe seem to be almost as bad as those from America. According to the *Fruit Trade Journal*, published in London, Eng., there will be very few apples or pears in England. Indeed, in some parts the crop will hardly pay for harvesting. The trees have been affected by blight and stripped by caterpillars, and the blossoms, owing to frosty nights occurring when they were open, have set very

little fruit. Conflicting reports have been received from the various apple-growing districts of Holland, from a summary of which one half of an ordinary crop is calculated upon. A report from Antwerp states that the Belgium crop also is very uncertain, and that not more than half a harvest can be estimated upon from that country. It is therefore probable that apples will this year be higher priced than last year.

LATE OR EARLY RIPENING OF PEARS.

SIR,—I should be very agreeably disappointed to find the Longfield apple keeping so well as is stated in your July issue, p. 207. I have had it in fruit three or four years, and find it in good eating order quite early in the fall. There can be no reliable test of the keeping of any apple in small quantities. I find they act quite differently in barrels, and as yet I have not had Longfield in that quantity. Few people, even fruit growers, understand the principles underlying the keeping of apples. The Russians are said to keep in good condition many of their varieties which have not yet proved long keepers in America. I attribute this in part to their shorter summer and the early on-coming of cold weather in the orchard latitudes of that country. But probably that is not all. I find that even the September apples, like Oldenburgh, only need to be gathered as soon as colored, and while still quite hard, and placed in a cool cellar, to prolong their season all of four weeks. Attention to gathering apples in the morning while cool, or in cloudy weather, makes a considerable difference, particularly if they have to be kept in barrels. Baskets are better for fall fruit. I have found that a little skill alone is needed to have the Wealthy apple in fine eating in October, or by a different treatment to hold them firm and sound until March. Gather them rather late in September, store them in bulk in a warm place and their rich odor will inform you truly that they are in eating order by the last of October. Gather them as soon as colored, in the morning, transfer them in barrels at once to a cool cellar, of which the windows are closed by day and opened by night as late as is safe, and they will keep until the cellar begins to warm up with the advance of spring. But, for long keeping, only sound and unbruised fruit must be used, and it must be handled like eggs.

Newport, Vt. T. H. HOSKINS.

LAYING DOWN PEACH AND PLUM TREES.

I HAVE just read the notes on growing plums in the cold regions by laying down for winter protection, and wish to say that the East European method is much better than that practised by Mr. Hamilton and Mr. Sharp.

When young and easy bent down, attention is given to making the most possible growth upward by trimming up the stem. When the trees have attained a height of stem of from four to five feet, the stem *is laid down permanently*. The next spring the top is bent upward and kept perpendicular by tying to a stake. The next fall, and continuously thereafter, the laying down is done by cutting loose from the stake and bending over to one side. The spring in the four or five feet of prostrate stem will permit even a small boy to lay over the top and pin it down for covering with earth or litter. In parts of Iowa we are now growing the tenderest and best peaches and plums in this way.

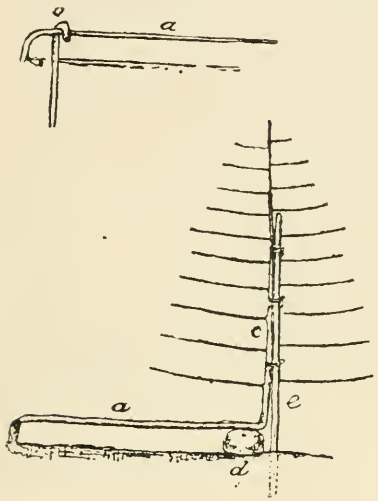


FIG. 55.

The only care needed is to keep the prostrate stem from rooting. If it becomes rooted, the top becomes much stiffer and difficult to get down without injury. The rough sketch will show the prostrate stem and top attached to stake.

Iowa Agricultural College. J. L. BUDD.

PEACH YELLOWS.

THERE has been for a long time an opinion held by some prominent Massachusetts fruit growers that peach yellows were curable, and now comes the eighth bulletin of the experiment station of the Massachusetts Agricultural College, bearing testimony in the same direction. It seems that experiments have been made since 1875 by Prof. Goessman and by Prof. Maynard, the latter of whom is the writer of this bulletin, and as a result both these gentlemen are convinced that the disease is curable. The yellows is claimed to be the result of such causes as lack of proper food supply, injury by cold, injury by borers, injuries by accident, etc. Out

of an orchard of nine hundred trees in the college orchard, fifty were unmistakably affected with the yellows, and every one of these were injured, in either their trunks or their main branches, from ten to sixty per cent. While not professing to have discovered anything about the real nature of the disease, Prof. Maynard is confident that it can be prevented, and indeed often cured, by careful cultivation in early spring only, and by applying a complete fertilizer in the fall or early spring. The fertilizer which he particularly recommends is the following: Equal quantities of muriate of potash, and nitrate of soda, with about four times the weight of ground bone, applied in March or April, from five to ten pounds to a tree.

We are inclined to be a little dubious about the statement that all trees affected with the yellows will be found to have been subject to one of the causes enumerated. We had an orchard of three thousand peach trees at Maplehurst a few years ago, and about two thousand of them died with the yellows, and we feel certain that a large proportion were not affected by any of these predisposing conditions. However we are inclined to attribute some virtue to the liberal application of potash fertilizers to the peach orchard. An orchard of eight hundred trees is now in an excellent state of health and vigor, and cases of yellows are very rare, and, when they do occur are of course, at once rooted out. These have been very liberally treated every year with wood ashes, and as a result, no doubt, are in their present vigorous condition.

INSECTIVOROUS BIRDS.

THE following birds are to be classed among the most helpful kinds in the general warfare against insects: Robins—cut and other earth worms. Swallows, night-hawks and purple martins—moth catchers. Pewees—striped cucumber bugs. Wood thrushes and wrens—cut worms. Cat birds—tent caterpillars. Meadow larks, woodpeckers and crows—wire-worms. Blue-throated buntings—canker worms. Black, red-winged birds, jays, doves, pigeons and chippies—strawberry pests. Quail—chinch bugs, locusts. Whip-poor-wills—moths. Hawks, all night birds, owls, etc., tanagers, and black-winged summer red birds—curculios. There may also be mentioned the following insect pest destroyers: Nut crackers, fly catchers, chimney swifts, indigo birds, chipping and song sparrows, black birds, mocking birds, orchard orioles.

PACKING FRUIT FOR LONDON.

(Extract from "British Trade Journal." June 1, 1890.)

NOW that powerful corporations are busying themselves with the cultivation of fruit in the Colonies and in Central America, with a view of shipping direct to London, general interest attaches to the result of the competition in fruit packing recently instituted by the Victorian Government. A prize was offered for the best packed box of apples consisting of twelve varieties, eight of each kind, to be shipped from Melbourne to London, the prize to be given to the firm or the fruit grower whose consignment should arrive in the finest condition. The boxes were addressed to the Agent General for Victoria in London, Sir Graham Berry; and on the 19th ult. they were opened and examined. Unfortunately the competition was limited to two boxes, one having been sent by Mr. S. A. Nielson, of Richmond, Victoria, and the other by Mr. Draper of Arthur's Creek. Sufficient, however, could be gathered from the two methods of packing adopted to afford a valuable lesson to all engaged in the trade. The first, Mr. Nielson's, was undoubtedly superior, and generally successful, although the selection made as regards the variety of fruit was not happy. Of the ninety-six apples which he sent only five were decayed; in four of these (Adams' Pearmain) the decay was but slight. The apples were gathered on March the 15th last, and packed on the 20th, and dispatched in the cooling rooms of steamers. They were first placed singly in ordinary paper bags. They were arranged in layers in the boxes, and the intervening spaces were carefully filled with paper shavings, a sheet of paper being laid between each layer. The box was in two compartments, divided by an upright partition, preventing too much lateral pressure when tilted on its side. Thus there was little risk of crushing or bruising in course of transit. On opening the case the apples were nearly all found in an admirable condition as far as appearance went; and the color was remarkably bright; but the flesh was in many cases very dry and tasteless. The "Jonathan" variety was one of the best. It is of a rich crimson color, and fairly crisp and pungent in flavor. On the other hand the "King of Pippins" was juiceless and insipid, and of poor quality, unfit for an eating or dessert apple. The "Hoover" seems a good baking apple, which, if imported cheaply, would sell well during the early summer months. The "Ben Davis," though rich in color, has a pulp quite too rich for the English palate. "Rymers are also uneatable on their arrival here, however mellow and palatable they may be at the Antipodes. "Chamberlain's late Scarlet" turned out well, being juicy and of good skin and bright color. Another apple arrived much like wool. The second box had the apples wrapped separately in tissue paper and that was all. The result was that not a single specimen came out uninjured, and in

many cases they were quite rotten. The experiment serves to show that in no case must such packing as paper or wood shavings be omitted in packing apples. Probably the soft thin shreads of wood fibre now made by machinery would serve the purpose admirably, and be in the end better and more durable than paper. They have, moreover, the advantage of being readily and cheaply made from many of the woods in which the Colonies abound. It remains, of course, to be seen whether other kinds of fruit—such as grapes—could be packed in the same way. There is no doubt that fairly good quality, placed in large quantities on the London market early in spring or summer would command a sale, unless the prices were prohibitive. Just now, at the end of May, the London fruiters' shops are redolent with the delicately tinted Tasmanian apples. These attract, but the consumption is confined, by reason of the prices, to the wealthy few. The vast multitude of buyers is not yet touched.

FALL VS. SPRING PLANTING.

FROM the purchasers' standpoint, does it pay to buy fruit trees in the fall? Are there any advantages gained by purchasing in the fall equivalent to the disadvantage of laying out of your money for six months for an article that cannot be made any use of till the spring? If there are none that can be shown, that of itself is a sufficient objection to fall purchasing. Then, what are the advantages claimed and set forth by the advocates of fall purchasing? First, if the purchaser be a farmer, as is the case in the majority of instances, he is told that by securing his trees in the fall he will have them on hand in the spring soon as the season opens and can get them planted and out of the way before his other work demands his attention, and that by an early planting they will get the full benefit of the spring rains to give them a fine setting, and as a result an early start. On the other hand, if he does not get them set out early he is told he can leave them lying in their winter bed till the season is well advanced, and they will then lose no time, as they will have started to grow and, the weather being warm, will rush right ahead soon as planted out Both of these arguments are fallacious and deceptive, as I think can be shown alike from the standpoint of common sense and from actual experience.

In the autumn season nature prepares the tree for the approaching winter. First evaporation is suspended, then the flow of sap from the roots ceases, the leaves separate and fall off, the bark contracts and tightens about the tree, the pores of the outer covering close up and the tree is ready to resist the penetrating cold blasts of the winter season. If the tree be dug up for fall delivery the process of preparation is very different to this. The leaves are stripped off by the nurseryman before evaporation has ceased, or any

preparation has been made to resist the winter's cold. The tree is sent out in this condition ; it is buried in the earth beneath the frost for the winter ; it absorbs from the soil all the moisture that it can contain, and if, at the first approach of spring, it is taken out of its winter bed in this state and exposed to the cold piercing winds and keen night frosts it is going to have a severe struggle for life. To subject a young tree to this treatment is like taking a child right from the bath tub, and, whilst the pores of the system are all open, exposing it to a cold and chilling atmosphere. The child could not stand such treatment without receiving a shock to its system ; no more can the young tree. If it be a pear or an apricot tree it will almost certainly die ; if a plum it may live ; if an apple tree it will most likely live, but it will show evidences of its harsh treatment through life, in what is known as black heart or other kindred defects.

On the other hand, if the tree be allowed to lie in its winter bed till the season is well advanced and the days become warm and sunny, its fate will be none the less precarious. Before being taken out the buds will have formed and swelled, ready to bursting open ; planted out in the warm sunshine they will immediately burst forth, and in less than two weeks you may have a growth of over an inch in length. But you will not likely get any more growth that season ; for, having exhausted the vitality in the tree itself with no corresponding growth at the root to sustain a continued top growth, the latter must stop and the tree becomes stunted ; and, in spite of every effort on your part to revive its growth it will remain in that condition throughout the season, and the winter will come upon it before it has sufficiently established itself to withstand the frost and storm, and it will die the following spring. The cause is not far to seek. The tree, as before mentioned, had become flushed with sap from absorption ; when set out in the warm sunshine this absorption was stimulated into abnormal growth, and as there was yet no warmth in the ground to promote a growth at the root, the growth at the top must stop when the abnormal vitality of the trunk is exhausted and there is no preparation made at the root to sustain and continue it. To insure a continued and healthy growth in a tree that growth must first begin at the root. This is nature's method, and any interference at variance with her natural operations is certain to be followed by undesirable results, and any tree that has not established itself by firm root growth during the first season after transplanting, in only an exceptional case will it come safely through the winter to do so the second season.

Apart, then, from any monetary consideration, fall deliveries are, in my opinion, decidedly against the purchasers' interest. The very high percentage of mortality, if I may so term it, among pear and plum trees in the County of Perth, I attribute to fall deliveries, and a large percentage of the unhealthiness in both young and older apple orchards, I attribute to the same cause. For example, four years ago a neighboring farmer purchased

a dozen apple trees, which were delivered to him in good order by myself. After keeping them "heeled in" all winter he planted them out early in the spring as recommended. A day or two after a severe storm of sleet set in from the south-west, followed by a keen frost. Every one of those trees lived, but from the start they presented a very unhealthy appearance. On examining them in the month of August following. I found on the south-west side on many of them what I supposed to be frost bites. The bark in spots had become quite dry and hard, and sunken away from the living part of the tree. These spots are now nearly or quite over grown but they will ever remain diseased spots in the trunks of the trees, affecting them to a greater or less extent throughout their whole system. In my own personal experience I have planted, during the past six years, fourteen plum and pear trees received in the fall, of that number two only are living. During the same time I have planted thirty-three received in the spring, out of which only four have died, and I was strongly suspicious that these four were fall dug when they came to hand. As a class, I have a special regard for nurserymen, and the business in which they are engaged has always had a peculiar attraction for me; yet I have still to meet the nurseryman who can instruct nature in her methods, or improve upon them, and the tree left undisturbed in the soil in the fall, prepared by nature in her own way for the approaching winter, and dug up in the spring for transplanting, is, all things considered, the most profitable tree to purchase, and the only safe tree to have anything to do with.

Mitchell, Ont. T. H. RACE.

PEAR LEAF BLIGHT.

SIR,—Why do the leaves of the pear tree turn black at this season of the year, and drop off? Is it part of the pear blight?—H. WILSON PALMER, *Frankford, Pa.*

AS it appears that this difficulty is very widespread, appearing not only in the vicinity of Philadelphia, but also in Illinois, New Jersey and Ontario, it deserves more than a passing notice. The damage caused has often been very considerable, as trees badly affected become almost wholly defoliated, and this interferes with the growth of the new wood, and consequently with the maturity of the fruit.

Its presence may be first noticed by the appearance of small, dull, carmine red spots early in spring, and which turn to a dark brown color and then drop off. Even the fruit is itself often attacked, showing first spots which are carmine red, and afterwards become dark colored; the skin then takes on a rough surface and often cracks deeply.

The fungus is known as *Entomosporum maculatum*, and is much the same as that which attacks the quince. Probably it is also related to the one which has played such havoc with our apple orchards this year, though

on this point we do not speak with confidence. The spores live over the winter on the fallen leaves, which, therefore, it would be wise to destroy where they are known to be affected, were it a practicable thing to do. No doubt the best remedy is the use of some fungicide such as the Bordeaux mixture. This should be applied with a spraying pump early in spring,



56.—BORDEAUX MIXTURE ON PEAR TREES.

just before the leaves begin to swell, and again with a weaker solution of the same when the leaves are about half grown. For the first application the usual formula may be used which is as follows :—Dissolve sixteen pounds of sulphate of copper in twenty-two gallons of water; in another vessel slake thirty pounds of lime in six gallons of water. When the latter mixture has cooled pour it slowly into the copper solution, care being taken to mix the fluids by constant stirring. The weaker solution for the second application may be made as follows:—Six pounds sulphate of copper in sixteen gallons of water and six pounds of lime in six gallons.

VALUE OF FRUITS AS FOOD.

HESTER M. POOLE in her new book, "Fruits and How to Use Them," quotes a number of authorities in support of her theory that fruit is one of the most valuable articles of food that we possess. The athletes of ancient Greece were nourished by dried figs, nuts, soft cheese

and heavy bread. The food of the Moorish porters in Spain consists of brown bread and grapes. The apple is given first rank as an article of food, and next to it is the grape. It is asserted by the scientist C. V. G. Napier that persons using a farinaceous and fruit diet feel no inclination for alcoholic liquors: "I have noticed that a taste for spicy condiments, butcher's meat and alcoholic liquors is associated, and that a taste for plain flavored vegetables, fats and oils is likewise associated. I have known persons in the habit of taking alcoholic stimulants daily, when eating meat, who find they must give them up entirely when living without meats, their action under those circumstances being too irritating to be endured without great inconvenience." If this is true, the best way to promote temperance is to induce the people to partake more largely of fruit. Mrs. Poole thinks that woman would better her position by giving her undivided thought to the cultivation of fruit, and she calls attention to the fact that in one state alone there are 80,000 superfluous women. These have to support themselves in some way, and why not do it by raising and canning fruit?—*Turf, Field and Farm.*

THAT HUBBARDSTON APPLE.

I WOULD have replied to Mr. Williams' interesting letter on page 176 of THE HORTICULTURIST—so that it might have appeared in the July number—but being away from home could not do so. I am inclined to think, from Mr. Williams' description, that I have not been getting the true Hubbardston, as the apple he describes is similar to the one I have been receiving from Prince Edward County. I might add further that it is very smooth and regular in form, and fully three-fourths the size of a well-grown King. If this is not the true Hubbardston, I always thought it was, and am thankful to Mr. Williams for his information. It might not be out of place to state that I got a considerable quantity of "La Rues,' or "Baxters," from the same section three years ago, and they proved a most valuable apple to sell by the barrel, but rather too large to retail. They have been enquired for every season since by those who bought of the lot above mentioned. I would have liked to have said a few encouraging words to my northern friends about some plums and apples that are "promising well," but as last winter was milder than usual, I might be speaking encouragingly too soon, and will wait for another season.

None of your readers have yet given me the information I asked for as to the quality, etc., of the "Crimson Pippin." This, to my astonishment, is among the promising varieties. No. 327, or Yellow Arcad, is fruiting with me this season for the first. It will apparently be an extra early variety, as the fruit is larger than the Yellow Transparent standing beside it. Canada Baldwin so far has never killed back an inch, but seems slow in coming into

bearing. If none of my northern friends have yet tried the *Weaver Plum*, I think they might safely venture on one or two. It fruited with me last year for the first, and is the first *meaty greenish plum* I have been able to grow. The quality is excellent, apparently a grand acquisition to our small list of fleshy plums. But I see I am doing the very thing I promised not to do, so I will close before I get my friends into trouble.

Renfrew, July 4, 1890. A. A. WRIGHT.

THE MERITS OF WOOD ASHES.

IN an essay read before the American Horticultural Society at the Cleveland, Ohio, meeting a few years ago, Mr. J. M. Smith gave an account of the means employed for the prevention of the evil effects of a prolonged drought. Among these means a free use of wood ashes was named as one of the simplest and most effective.

Recently Mr. Smith has made a comparative test of the effects of wood ashes and barn-yard manure on a scale large enough to show results that are more than an "indication." Two acres lying side by side were treated exactly alike in every respect except that one was manured with unleached wood ashes, and the other with stable manure. Mr. Smith reports the results of the trial to the *Prairie Farmer* as follows:

The acre fertilized with ashes yielded fifty-one bushels the most, and if there was any difference in quality it was in favor of those that had the ashes. Now, the fair inference would be that the ashes were much the better manure for potatoes. Let us look a little further: The last half of May and the first half of June were wet and cold, and so far the two acres seemed to keep just about even. After June 15th the weather became very dry, and there was little rain upon the plants until they were ripe. Very soon after the ground began to get dry it could be plainly seen that those manured from the compost-heap were suffering from want of rain, while those manured with ashes were growing very rapidly. This continued until they were ripe.

The simple fact is, potatoes or strawberries manured with ashes stand drought that would be ruinous to crops fertilized with any manure I have ever tried. To this fact I attribute the failure of the compost-heap acre to hold its own with the acre upon which ashes were used. I have tried the experiment many times, always with precisely the same result, provided we had a dry season during the growth of the crop. I do not know but the rule will hold good with all farm and garden crops, but with the above named there is no doubt. I do not underrate ashes as manure. I have used them in preference to any fertilizer I could get for potatoes for many years.

ZINC IN EVAPORATED APPLES.

A SAMPLE of evaporated apples, analysed by Dr. Peter Collier, of the New York Experiment Station, was found to contain in every 1,000 pounds the equivalent of one and one-half pounds of sulphate of zinc, which is a well-known active poison. Dr. Collier says it is reasonable to suppose that the continued use of these dried apples would lead to very serious consequences. This appears like a rebuke to the flippant, careless manner in which some fruitmen, and even horticultural societies, have tried to pass lightly over the action recently taken by the Hamburg (Germany) authorities against American evaporated apples. Our people most interested in this question have hardly thought it worth their earnest consideration, assuming the inconvenient proceeding on the part of our foreign customers to be merely founded upon spite or unfriendliness, and have been showing an inclination to drop all further inquiry. We mention Dr. Collier's discovery to show the urgent need of further and careful investigation of our present methods of evaporating fruits. This should be attended to without delay, and before another evaporating season arrives.—*Popular Gardening.*

POTATO GROWING vs. APPLE GROWING.

I HAVE been so very busy (as well as absent from home a part of the time), that I had not carefully looked over your June issue until now. First, I want to thank you for the good portrait and notice of Mr. Gibb. When, in the good time coming, true merit is rightly understood, it will be such men, rather than politicians and soldiers, who will have memorial structures erected in their honor.

I understand, from what my valued friend Mr. A. A. Wright says, that he thinks I am not just to the apple as a money crop, in placing it no higher than the potato for profit. Of course values vary in different localities and markets, but New England produces many more apples, even of the best grade, than the home market will take, while we import a great many potatoes in some years even from Europe. Careful growers, even so far from cities as I am (236 miles to Boston), can *average* $50.00 per acre net profit on their potato crop. This is fully as much as we can do on apples, with the drawback that we get a full crop only on alternate years. Of course we have an occasional failure with the potato, but not nearly so often. I sold all my potatoes last year at fifty cents per bushel at the farm, and although it was also a bad year for apples, I did not average as much, taking all

grades, for my apples. A net *profit* of $50.00 an acre is 200 per cent. on the cost of good potato land at the present low prices of Vermont farms. And yet "farming don't pay."

Newport, Vt. T. H. HOSKINS.

P.S.—Reading this over I fear you may get the impression that I made $50.00 per acre on potatoes last season. I got less than half an average crop, and came out just even at fifty cents per bushel. No profit.

T. H. H.

SMALL ORCHARDS.

ONE of the mistakes of the times is the popular belief that everything in a business way must be big. This idea has grown out of our haste to grow wealthy and from superficial calculation, such as, if one acre pays $100, 100 acres would pay $10,000, and 1,000 acres would pay $100,000. Men seldom make such money out of very large orchards, and, while a source of envy to small holders, they are often, in fact, just holding on or running ahead on borrowed capital. The men who make money and get rich out of horticultural pursuits are generally those who do not attempt more than they can look after personally. From ten to eighty acres are the sized tracts which pay the highest per cent. of profit, if they are properly conducted. The idea that a living cannot be made out of a small place has retarded many from going into a business in which they might now be making an independent living. There is a vast amount of waste from one cause or another; the taxes are up, the cost of cultivation is great, and the amount of money invested in machinery, stock, etc., is a considerable item. The fighting of insects and partial or entire failure of a crop upon a very large place means, in many cases, ruin, because the expenditures have been so great and the per cent. of profit so small in proportion that it is difficult to recover from such a blow.

The small holder has correspondingly small expenses, has little trouble on account of incompetent help, and the lost motion is a small consideration. He can superintend the work himself and save the waste. His expenses being much less and the profits much greater in proportion, and the time at his disposal greater, calamities do not fall upon him so heavily. The trouble with many of our fruit growers, who complain of poor prices and hard times, is that they are trying to do entirely too much and are too high-toned to raise in connection with their fruit that which they use daily upon their tables. Many of them have neither a cow, pig-sty, pasture-land, chicken-yard, vegetable garden or berry patch; in fact, they look upon all economical measures as beneath their notice. Eveything used in the family or stable must be purchased out of the profits from the fruit, and if there are no profits there is nothing with which to purchase, and the money must be borrowed. —*Anderson (Cal.) Enterprise.*

New or Little Known Fruits

LETTERS FROM RUSSIA—IV.

THE SAPIEGANKA PEAR OR AUTUMN POLISH BERGAMOTTE.

I GIVE in your journal a description of this pear, not on account of any particular prominent qualities which it possesses, but because I am of the opinion that on account of its hardiness it may be successfully grown in Canada.

In its home in Lithuania, old and large trees are met with which have endured many severe winters. In the Tamboff Government it is the most hardy of all pears there grown, and for this reason the Sapieganka can be positively considered a hardy variety.

The fruit is of middle size, of Bergamot type, the skin is smooth, yellow and has a red cheek on the sunny side. In Lithuania it ripens on the 1st of September, in the Tamboff Government in October, and keeps in the cellar two months. The flavor of the flesh depends upon local conditions, for though it is tasteful enough in the warmer districts, it is sometimes harsh; and when grown in the north it is juicy and buttery. The fruit is adapted for the table, drying and other home uses. This pear is recommended by Russian horticulturists as being adapted for cultivation in market garden.

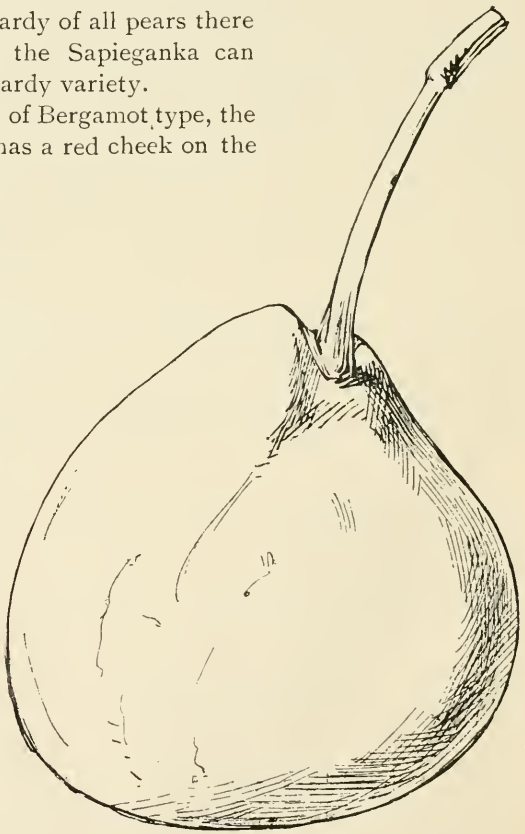


FIG. 57.—THE SAPIEGANKA PEAR.

JAROSLAV NIEMETZ.
Rovoro, Wolinia, Russia.

RED BIETINGHEIMER.

IT is with much satisfaction that I am able, after seven or eight years' test, to pronounce this apple iron-clad in Northern New England. It has gone through all the winters unharmed in a single bud, and two, at least, of them were among the severest on record. While the Oldenburgh is productive, handsome and salable, there is decidedly a call for a better dessert fruit among our September apples. The St. Lawrence is a large, handsome and good fruit, but is a shy bearer. The Zolotoreff, among the Russians, is

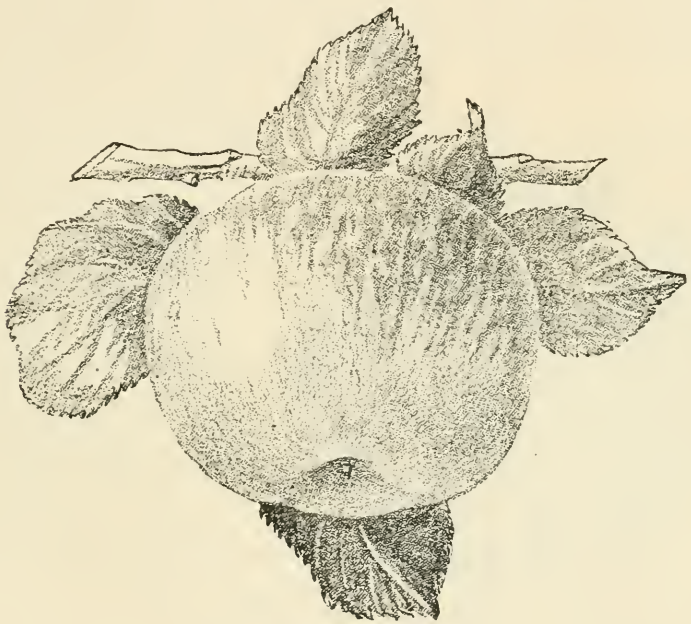


FIG. 58.—RED BIETINGHEIMER.

better than Oldenburgh and quite as handsome, but its ribbed form is against it. The Titus, mentioned last month, is very acceptable, but I am inclined to believe that we shall find the Bietingheimer superior to any of these showy fall apples for market. There is no mistake about the value of large, handsome apples at this season. There is a great call for them at the street stands, on the cars and in the markets. President Barry has strongly championed the merits of this new German candidate for our American suffrages, and withal has treated its Russian rivals rather too scornfully. But we cannot have too many good things, and I take pleasure in hailing this apple as one likely to prove very profitable as a market fruit.—*Dr. Hoskins in Orchard and Garden.*

THE NEWER STRAWBERRIES.

IT might be expected that we would make some positive statements regarding the merits of some of the newer strawberries, when it is known that we have some sixty kinds under test at Maplehurst; but the more we experiment the more we find the need of caution about making statements regarding their merits. A new fruit that under certain conditions gives wonderful promise often proves a failure under ordinary conditions.

The JESSIE, for instance, is a magnificent berry, measuring four to five inches in circumference when receiving extraordinary treatment in points of cultivation and manure, but when treated as we usually do our Crescents it is not satisfactory. Allowed to grow in wide, matted rows, with ordinary manuring, we find that the first few berries are large and in keeping with its general reputation, but the balance of the crop consists of small, imperfect ones, and the yield is therefore scant.

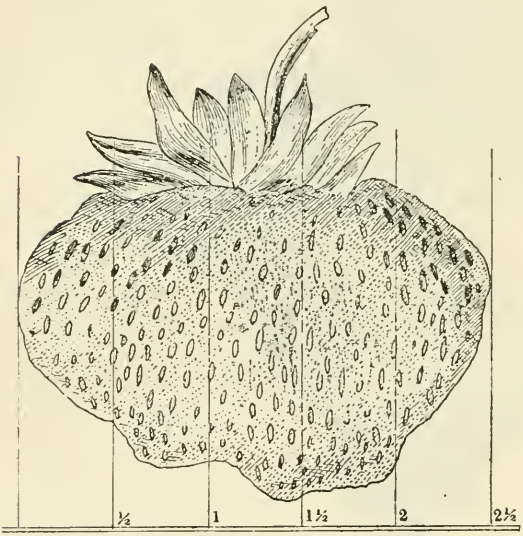


FIG. 59.—THE BUBACH STRAWBERRY. ACTUAL SIZE.

The BELMONT is a berry of marked characteristics, large, firm and, with high culture, fairly productive. It is one which we would like to test on a larger scale.

The BUBACH appears to be all that is claimed for it, and deserves to be planted on a larger scale and tested in field culture. The June number of *Popular Gardening* pictures a large sample of this berry which we reproduce. It was grown upon a plant two years of age in moderately fertile soil. It was considered by the grower a remarkably huge berry, but a writer in the July number, says that the Bubach frequently attains the size represented. He says: "The writer this season has picked dozens of just such berries, some of them even larger, and all of immense size."

It is a No. 1 berry for all purposes, and for market there seems as yet nothing to compete with it. It is a most vigorous grower, never rusts or blights, always a good bearer of berries, and seems to succeed everywhere.

Of the many others, such as Michael's Early, Lady Rusk, Great Pacific, Haverland, Warfield, etc., we must decline giving any personal opinion till we

have tried them on a larger scale. We note, however, that at La Salle, according to the journal above mentioned, the Warfield has proved itself a magnificent berry, and is described as being a magnified Wilson, "a great producer of plants, with enormous, healthy foliage and plenty of very large fruit, which has some of the characteristics of the Wilson, such as appearance, texture and flavor."

THE WILLIAMS STRAWBERRY.

AT our meeting at Niagara, a wonderfully fine seedling strawberry was exhibited for name. Samples of the same berry had been sent the secretary by express, about a week previously, by Mr. David Greig, of Cainsville, Ont., accompanied by the following letter:

SIR,—I send you by express to-day a few strawberries as a sample of a local seedling that is creating quite a sensation in this section at present. It was on this place when I purchased it, but its merits did not seem to be much known until last season, when I had it on the Brantford market in quantity; since then the verdict is that it is the coming berry for this section.

It was raised by a Mr. Williams of Brantford township, from Crescent seedling, fertilized by Sharpless. It is an enormous bearer of very large berries, which must be allowed to ripen before picking, or will show a little of the white tips of the male parent. Planted beside the Sharpless on this soil, which is a rich sandy loam, it will yield four times as much in weight of fruit to the acre, and will carry well to a distant market in an ordinary season, but has ripened soft this season from the great rainfall. Grown in the same field with the "Jessie" it gives a much heavier crop, and its berries are quite as large as those of "Jessie" and the plant much hardier and will stand an amount of bad usage that would kill tender varieties.

If you think it worth bringing before your fruit committee, I wish you would do so, and if you would like to test it at Maplehurst I will send you plants in fall or spring. I had a great demand for plants of it this season, but only in this section. I think it should be widely distributed, as I find there is more money in it than in any other variety that I know. It has two names, viz., Williams' Improved and Prince of Orange.

Cainsville, Ont., June 25, 1890. DAVID GREIG.

The samples were wonderfully fine, being large, of a good high color, firm and well shaped. These would not keep until the meeting so that it was fortunate that a fresh box of them was brought to us at Niagara, by a Mr. Lee, of Virgil, with the same object, viz., a name. No better proof of its good quality is needed than the rapidity with which this boxful disappeared from the table, after judgment had been passed on its merits. The committee, having learned that it had originated with a Mr. Williams, in the township of Burford, decided to name it the Williams, after its originator. The berry is creating a great sensation wherever it is known, and may, after all, be the coming berry so long sought for.

Mr. Greig, writing later under date of the 11th July, says further: "This berry has far exceeded all others for length of season, bearing, heavy cropping, size of berry and fine appearance in the market." And again, in response to enquiry whether the plants could be secured for distribution to our members, he wrote: "I am willing to sell you a sufficent number of the Williams strawberry to give four to each member of the Fruit Growers' Association. Mr. Lee who showed the berries at your summer meeting is

the man of whom I purchased this place in 1887. He took 500 plants from here to Niagara. He had plants from the originator (Williams) to test on this place; so this may be called the home of the Williams strawberry. I am glad it is so highly valued, and would like to see it distributed as it deserves. I think it a great acquisition."

THE GRAPE-FRUIT.

COMPARATIVELY little is known in this country of the grape fruit, or pomelo, which is now rather widely grown in Central America. The pomelo tree is a native of China and Japan, and was first brought to the West Indies, by Captain Shaddock. Thence it was taken to Florida and California where upwards of forty distinct varieties are now in existence. The grape-fruit is of the *Citrus* family and somewhat similar to the orange in appearance, though rather large and coarser. The pomelo can be grown more easily than the orange, and, coming as it does at the close of the orange season, it is in a fair way to becoming popular in the States. The fruit grows in clusters, two, three or four hanging together from the stem, from which peculiarity it has derived the name grape-fruit, by which it is generally known. A comparatively small tree will, it is said, often bear as many as two thousand pomelos at a time. These are cut down in the same manner as oranges, and wrapped separately in tissue paper ready for the market, where they fetch from a penny to sixpence each. The quality varies as much if not more than does that of oranges. Those with smooth, clear skins are considered the best. It is a singular fact that though widely grown in Central America this fruit is not systematically cultivated to any very large extent, many of the trees being planted more for ornament than use. If properly treated, the yield would be much better than it is to-day, and would give a very fair amount of profit to the grower.

JULY STRAWBERRY REPORT OF OLD AND NEW VARIETIES.

EVERY year, in going the rounds of the berry trade, we give away samples of the different varieties to be tasted, commencing with what we judge to be the poorest. Much to our surprise, when we come to what we call superior flavor, they still give the same adjective—"good"—by which to express their judgment. Much chagrined to think that our favorites called forth the same meed of praise as those we esteemed much inferior, we made another effort to elicit stronger praise, and the reward was only "The fact is, they are all good."

It may be that many of our readers think all strawberries are "good," but we want them to know also that some strawberries are *better* than good, and to this end we maintain large trial beds in order that we may report from a personal knowledge of each and every variety.

Every day during the strawberry season we took special notice how all varieties maintained their former reputation—our former opinion of the following still holds good:—Eureka, Mrs. Cleveland, Jessie, Bubach No. 5, the plants are faultless, berries large and plentiful, and suited to the "taste" of the most fastidious.

The next in value are Warfield No. 2, Pearl, Haverland, Daisy, Miami. From correspondence of other strawberry growers, the most of these varieties do well over a large area of our country.

Then there is another class of growers. They are so conservative, they won't plant any variety but those "scraggy" things, such as Wilson, Crescent, Green Prolific and that class of berries worth *two or three cents a box.*

In closing this paper I would recommend the readers of the HORTICULTURIST to try some of all the varieties in this paper; also the Crawford, a seedling of our strawberry friend of that name, it is large and beautiful, and good flavor. There are several seedlings tested here that are worthy of mention, viz., "Saunders," which is being tested in several places; also "Woolverton," these both are tested in Ohio and Michigan Experiment Station and in other places, and the reports of them are very satisfactory.

London's Fifteen, Twenty-two, Thirty-three and Sixty are worthy of testing, especially his Fifteen, it is so large, of good form and flavor, and superior to many, both in plant and fruit. It is now being offered for the patronage of the—well, persons like the *writer*—who enjoy testing every variety of the strawberry to see what they amount to in his own locality.

Some of Townsend's seedlings (not introduced) are very promising here, viz., his No. One, Two, Three, Ten, Nineteen and Twenty.

If spared, in my next "Report" I will give what are my opinions and that of other prominent strawberry growers of the new varieties planted this season.

Granton, Ont., July 14, 1890. JOHN LITTLE.

✻ Forestry ✻

HEIGHT OF TREES.—A SIMPLE WAY TO ASCERTAIN IT.

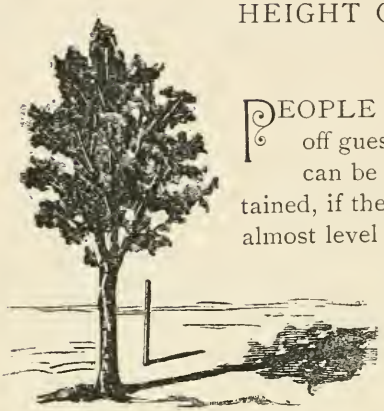


FIG. 60.—MEASURING TREES.

PEOPLE often make incorrect statements and far-off guesses concerning the height of trees. This can be averted and the true measurement ascertained, if the ground in which the tree is growing is almost level and the sun casts a shadow, as shown in the illustration. Measure the shadow from the base of the tree to its tip. Then measure the shadow cast from a vertical ten-foot pole. As many times as the shadow cast from the pole is contained in that cast from the tree, just so high the tree will be. For instance, the pole is ten feet, its shadow cast in mid-forenoon or mid-afternoon is five feet; and the shadow of the tree, measured at the same time is twenty feet; $20 \div 5 = 4$. This number multiplied by ten, the height of pole, gives forty feet as the height of the tree.

NORWAY AND WHITE SPRUCE.

ROBERT DOUGLAS, the best authority on the subject, claims that our native White Spruce is superior to the Norway Spruce in vitality. After the Norway Spruce has reached the age of thirty years and assumed a grand size it begins to decay, first, by loss of its foliage near the trunk, and which gradually extends towards the extremities of the branches, and then its leader dies, and the annual lateral growth is very small, and the whole tree takes on a rusty, unhealthy appearance, its disfigurement increasing until death ensues.

The White Spruce, Abies alba, is a much longer lived tree; it is a slower grower than the Norway Spruce, but continues in vigor long years after the latter has lost all claims to beauty. In planting it is best to group these two trees together in such a manner that a good effect will be retained when, on account of old age, the Norway Spruce shall have been removed.—*Vick's Magazine.*



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

RE-PACKING APPLES IN BRITAIN.

MR. A. McD. ALLAN gave his views at Niagara regarding the possibility of handling our apples in Britain to better advantage than hitherto, by carefully re-packing them before offering them for a sale. His attention had been called to this subject when at the Colonial Exhibition in England. He had seen so many apples arriving "wet and wasty" and selling at a loss. He was of the opinion that by re-packing such fruit in smaller packages they could be sold at a profit to the shipper, where now there was only loss.

By the use of cool chambers on ship-board he believed it would be possible to export even such early apples as the Duchess of Oldenburgh. He doubted whether it would pay to export pears to England, unless in case of unusual scarcity in England, as the pear was an important crop with European fruit growers. The Bartlett pear, as grown in Canada, was a very superior fruit to the same as grown in England.

THE WAGER PEACH.

MR. MORRIS, of Fonthill, states at Niagara that, in his experience, the Wager and the Mountain Rose were the two most profitable peaches to grow in this district for market. We have had most favorable impressions of the Wager. Last year it was the only kind which was really laden with fruit; and the color is good, and the season just when there are not many fine peaches to compete with it. Still we must withhold opinions until after a longer trial.

SUMMER PRUNING THE RASPBERRY CANES.

A VERY successful grower at Grimsby does not believe in summer pruning the raspberry at all, unless possibly a little pinching of the ends to make them stocky. His plan is, thin out the canes so that each will grow strong and stout, and to do all the pruning in the spring following. At that time he takes his grape pruning shears and shortens the cane down to four or five feet in height, or in case of any injuries showing the presence of the tree cricket, he cuts them off below the point affected. These are then burned and the insect destroyed. He even cuts off all side branches, and depends wholly upon the stout stalk to send out bearing shoots all down its whole length.

The eminent success which he has had in this way inclines us to give his method a thorough trial. His bushes are at this date (July 15th) laden down with their weight of fruit, and he claims that his fruit will be

much larger than if he had encouraged side branches on the growing cane instead of on the bearing cane, as he has done.

In the case of the blackberry, there is no question that the summer pruning is the only plan, both to keep the bushes within bounds, and to make them bushy with an increased quantity of bearing wood. We shall be pleased to publish the experience of other small fruit growers on this subject.

FRUIT ACCOMMODATION AT THE INDUSTRIAL.

WE are pleased to learn that, through the instrumentality of one of our directors, Mr. W. E. Wellington, the Industrial Exhibition Association has agreed to erect a building which is to be devoted entirely to the exhibition of fruit. This will be a great boon to exhibitors, and much increase the interest of the Association in the eyes of horticulturists. Of late years exhibitors of fruit have been much pressed for room, and much of the space, which had been provided for the display of flowers, has been occupied with fruit exhibits, giving the whole show a very crowded appearance. Now, although this is not an abundant fruit season, yet no doubt there will be a large exhibit in this line, and we are glad that the Association is properly estimating the value of the horticultural products.

Question Drawer

A BARREN APPLE ORCHARD.

64. SIR,—I have an apple orchard about fifteen years old in the County of Prince Edward, and for some reason it fails to bear fruit in anything like the quantity it should. The soil is rich and deep, the trees are thrifty, and I cannot account for their barrenness. I just came into possession this year, and, on enquiry, I learn that it has never borne to any extent; some of the trees would be the better of trimming, but I do not think that trimming would make them fruitful, as some of the trees are trimmed and in good shape, and yet unfruitful. What do you advise?—P. A. M., *Odessa, Ont.*

Since our correspondent gives us so very few of the conditions, it is impossible to give a positive reply. Very often an apple orchard which has been highly cultivated and manured spends all its strength in making wood growth, and it is only upon receiving a check of some kind that fruitfulness will result; this is frequently the case with young orchards, even up to the age of twelve or fifteen years. We would advise, in such a case, seeding down the land to clover for a few years, withholding barn-yard manure and giving the trees about half a bushel of wood ashes a year, not near their trunks, but spread broadcast as far as their limbs extend.

There are other causes of barrenness such as an enfeebled condition of trees from long continued neglect of cultivation, of manure, and of pruning. The bark-louse is sucking the life out of many of our orchards, and the borer is tunnelling their trunks. Besides some varieties, such as the Baldwin, have been subject to some sort of fungus disease, or blight, which has made them unfruitful.

GRAPE VINE EXCRESCENCES.

65. SIR,—I have met with the Knot on the grapes. I shall inspect for this further. I send you some samples which I have taken off of vines. The Champion is the most susceptible so far as I have learned. Two gentlemen say it is a fungus, positively; one of them says he has cultivated grapes for twenty years, and has seen it for years, and always cuts it at once; he further says he does not fear it as it is nothing like the Plum Knot.—J. M. DENTON, *London, Ont.*

A year ago large pieces of grape vines, affected similarly as this sample, were sent in to this office by Mr. George Fisher, Freeman, who had also corresponded with Prof. Fletcher, of the Experimental Farm, con-

cerning them. It appears that it is not a fungus at all, but a disease, due to climatic influences which has been long known by French vineyardists. In Bulletin 8 of the Botanical division of the U. S. Department of Agriculture, we find the following description of it:—

This is a disease which the French have named *Broussins*, the Germans *Krebs*, and the Italians *Malattia dei tubercoli*. The first name, "Broussins," meaning excrescences, is descriptive of the disease, and is the one we will adopt. Prof. Viala, in his work on the Maladies de la Vigne, pp. 441, 442, has clearly described the disease in question. His description is very complete, and the cause to which he attributes the malady appears most reasonable, and we cannot do better than to translate in full what he has written:

"Under the action of the frosts of autumn and winter, and especially those of spring, peculiar malformations are developed upon the roots, the root crown, the side branches and the shoots left after pruning. Upon the roots they appear as little nodules the size of a pea, more rarely as large as an egg, which are soft and spongy when moist, but firm and hard when dry. They have a warty surface, being formed of smaller nodules, which run together where they unite with the root. Upon grafts the adjacent layers of generative tissues sometimes multiply to an unusual extent, giving rise to a spongy swelling, having the form of Broussins. But it is especially upon the young branches and side shoots that these formations are most frequent. '*Broussins*' usually appears at the insertion of the shoots upon the side branches, but they also occur over the whole length of the inter-node or even several successive nodes, entirely changing their normal appearance. There are formed several masses of irregular excrescences, composed of a large number of shapeless nodules. The wood thus covered is often enlarged to four or five times its proper diameter. The bark is torn and often stretched in narrow strips over the irregular groups of nodules. The latter are soft and spongy, but become very hard when dry."

BARREN STRAWBERRY PLANTS.

66. SIR,—In the year 1887 I bought one dozen strawberry plants, the Itaska and Jessie kinds. I planted and secured all the plants possible from them. In the fall I had about one hundred plants which I set out; they grew, and I had a fine bed of them, but no fruit. My soil is a clay loam, well cultivated. I applied plenty of wood ashes, but no use. Please say what is the reason? I am sending you a sample of what they are at present; they stand full of bloom; ought to have one hundred quarts off this bed. Please answer in the next HORTICULTURIST number. —J. GARTON, *Toronto, June 21, 1890.*

We fear there is a tendency with the Jessie to become unfruitful after the first year of bearing. Will any of our readers give their views?—(Ed.).

THE FOUR-STRIPED PLANT-BUG.

67. SIR,—Enclosed find some striped flies that are destroying all my currant bushes, and in fact nearly everything in the garden. The leaves of the currant and gooseberry bushes look as if a fire had passed over them. I think they had first attacked the Spearmint. They are also very bad on the sunflowers, and were even on a few hills of potatoes that were near the currants.

Do you know what they are, and what would be best to use to get rid of them?—W. S. SHORT, *722 York Street, London.*

These insects have come to hand in good order, and been mounted for our cabinet. Scientifically they are known as Poecilocapsus lineatus, and are thus spoken of in Prof. Saunder's work on "Insects Injurious to Fruits:" This is a bright yellow bug, about three-tenths of an inch long, with black antennae and two black stripes on each side of its wing covers, the outer one on each side terminating in a black dot. It punctures the young leaves of the currant bushes on both their under and their upper surfaces, causing small brown spots, not much larger than pin-heads, but these are sometimes so numerous and closely placed that the leaves become completely withered. The insects are very active, and when approached drop quickly to the ground or fly away. They begin to feed in May or June, and continue for a month or two, often disfiguring the bushes very much and retarding their growth. When very troublesome

they may be captured by visiting the bushes very early in the morning, and while torpid with cold brushing them off into a pail partly filled with water, on which a little coal oil has been poured.

THE RED RUSSET.

68. SIR,—Will you kindly inform me through the HORTICULTURIST if you know any parties who grow the Red Russet. We are trying to introduce it here. It originated on the farm of Mr. Sanborn, Hampton Falls, N.H. It is a very vigorous tree, upright, spreading and productive. Young wood, clear reddish brown fruit, large, roundish conic yellow shaded, with dull red and deep carmine in the sun, and thickly covered with grey dots, with a slight appearance of rough russet on most of the surface, stalk rather short and thick, inserted in medium cavity surrounded with russet calyx nearly closed; segments, long recurved in a narrow uneven basin. Flesh, yellow, solid, crisp, tender, with an excellent rich sub-acid flavor, somewhat resembling Baldwin. Very good, January to April.—Yours truly, F. S. FAIRFIELD, *Orono, Ont.*

We have been growing the Red Russet apple for some years at Maplehurst, and have found it a satisfactory apple for dessert purposes. The tree is a good bearer, though somewhat more subject to the borer than some other varieties. The fruit is seldom affected by scab, and is usually of even size and an especial favorite as an eating apple.

SALT AS A FERTILIZER OR FUNGICIDE.

69. SIR,—Will you please inform me as to the effect salt would have sown now broadcast in a vineyard. Whether it would act as a preventive of mildew? If so, in what quantity should it be used per acre?

Some of my neighbors have used sulphur, but the results have not been satisfactory.

Please answer as soon as convenient, as the disease has already made its appearance. —J. H. P., *Niagara Falls South.*

As a fertilizer, salt has no direct value as soda is not an essential element in plant growth. Indirectly, however, it does act upon plant growth, and chemists explain it by saying that it effects the decomposition of substances already present in the soil, as, for instance, lime and magnesia. They tell us further that salt and lime react upon one another in the presence of porous bodies, forming carbonate of soda which is very efficacious in promoting the decay of humus. In the case of asparagus, salt may be used to good advantage as a fertilizer, though on the other hand some plants are injured by it.

Whether it would act as a preventive of mildew is an open question, as we have neither our own experience nor that of others on which to base any conclusions. Strong brine is destructive to many fungi when placed in contact with them, but how it could be used for this purpose on the grape vine we do not see, neither do we believe that it would be of any value.

As to the quantity that may be used, it should not be applied more heavily than at the rate of five or six hundred pounds to the acre.

Powdered sulphur is the best known remedy for the powdery mildew of the grape. Its effectiveness consists in the fact that at a certain temperature the flowers of sulphur emit fumes which are destructive to the powdery mildew. These fumes are formed most rapidly, when the temperature is above 77 degrees Fahr. Where the mildew is very serious, several applications need to be made during the season. It is not necessary that it should be applied directly to the affected berries, but if sown upon the ground under the vines it will suffice.

GIRDLING THE GRAPE VINE.

70. SIR,—On page 199 of the July number of the HORTICULTURIST, a paper is published on the "Girdling of the Grape Vine"; before doing anything in the matter I want more light on the subject—now, whether is the girdling done by cutting into the bark with a knife or by tying something around the vine—if the operation is done by cutting into the bark, should it be done any deeper than the outer bark, and if done by tying, of what material is it to be done? In northern Ontario, if girdling can be done safely without injury to the vine, it will be of great advantage. Kindly favor me with a reply at your earliest convenience.—JAS. ROSAMOND, *Almonte, July* 14, 1890.

The operation of girdling the grape vine may be done either by removing a ring of

bark or by some ligature wound around it. The former is the usual method. It consists simply of removing a ring of bark from half to three-quarters of an inch in width not simply the outer bark but the inner also, to the wood. The sap is thus prevented from returning, and, as a result, the fruit grows to a larger size and ripens earlier.

It has been found simpler, however, to cut small pieces of wire and fasten these tightly about those fruiting branches which are to be removed at the next pruning season. This can be best done by means of a good pair of pincers.

Girdling of the vine, to be effective, should be performed early in the month of July.

PARIS GREEN vs. LONDON PURPLE.

71. SIR,—Please state in the next issue of HORTICULTURIST the relative merits of London purple and Paris green as insecticides. which is the more safe and reliable? Can some of your experienced members tell how soon after spraying fruit trees a rain would render the work non-effective, and what quantity of rain? Would merely enough to drip from the trees be enough?—JOHN KILLAM, *North Kingston, N.S.*

Both these poisons owe their effectiveness to the arsenic that enters into their composition. The London purple is cheaper and somewhat more soluble in water, but being a refuse product from the manufacture of aniline dyes, it is very inconstant in its composition. The Paris green, on the other hand, if pure, can be relied upon as containing a constant proportion of arsenic. For this reason it is generally considered preferable for use in the orchard.

Since the Paris green is insoluble in water and is only kept in suspension by constant stirring, it is deposited upon the fruit trees in small particles by means of the spraying. A good rain, therefore, would wash it to the ground.

RICHARDIA OFFSHOOTS.

72. SIR,—I received in due time the lily bulb and immediately set it in rich earth. It has developed seven separate stalks about seven inches in height, six of which have the dotted leaf and the other plain green. They appear to be too crowded to do well. Should any of them be detached and set out separately, or are they intended to remain in a cluster?—D. G. CAMERON, *Strabane, Ont.*

It would be better not to disturb your Richardia Lily during the summer by removing the offshoots. In the autumn the foliage will die off, and at that time or in the spring they may be the more safely removed. Each of these suckers will then form a new plant.

Open Letters

HARD LINES.

SIR,—With pleasure I renew my subscription for C. H. I enjoy the reading of it. The article by P.E.Bucke on the Raspberry is too highly colored, 10cts. per quart is more the go. I am pleased to see the set back given to Mr. John Donaldson on the Gravenstein. I have a farmer friend here that can believe little he sees in our journal, on account of such high colored statements as have been published concerning the profits to be made on fruit. He says the whole lot of you have fruit trees to sell. I think if you spoke oftener of wages to be earned, instead of profit, it would be better. Farmers around here cannot make fair wages. Your letter to me, dated April 29, 1889, is before me, in which you say you are sorry I should have left a good trade to engage in fruit culture. I know of no good trade nowadays; machinery has ruined most trades. Take a man with a family of five or six children, with nine or ten dollars per week, and he never knows when he is going to do a week's work. Some part of the machinery breaks down, engine driver takes sick, your family sick, or you may be a half minute behind the bell in the morning at seven o'clock, that means lose one hour, you are put on short time and fifteen per cent. reduction of wages at the same time. You close down for seven weeks at a stretch, you have tools to buy, Sick Benefit Society dues to pay, etc. You will see there is not much left to live on after rent and fuel. I worked nearly ten years at London furniture factory, never had three holidays in the time, worked all spare time in garden or on my shanty, never smoked or drank and lived economically on brown bread, rice, oatmeal, fruit and vegetables. I do the same now; only the struggle for existence is harder still, for work is scarce and produce cheap.—L. P., *Whitchurch, Ont.*

Our Book Table

BOOKS.

HOW TO MAKE THE GARDEN PAY is the title of a new book issued during the present year by Mr. William Henry Maule, of Philadelphia. A copy of this work was presented to us by the author, Mr. T. Greiner, at our Summer Meeting at Niagara. It is got up in the most attractive style, full of illustrations, and deals with such subjects as the following in an interesting and practical manner: "Farmer's Kitchen Garden," "Success in Market Gardening," "Manures for the Garden," "Hot-beds," "Forcing Houses," "Early Plants for the Home Garden," "Insect Enemies and Fungus Diseases," "Seed Sowing," "Cultural Directions for the Growth of the Various Kinds of Vegetables," etc., etc.

This work appears to be one of special value. It is more and more evident that more money can be made out of the garden than out of the farm, if one thoroughly understands how to manage it. We can commend this work to all gardeners.

ANNALS OF HORTICULTURE IN NORTH AMERICA for the year 1889, a witness of passing events and a record of progress, by L. H. Bailey, Ithaca, N.M.

The appearance of two such works as "The Horticulturist's Rule Book" and "Annals of Horticulture" in one year prove their author to be a man of great industry as well as great ability, for although both are to a certain extent compilations, yet no one who does not himself thoroughly understand the matter, can make a compilation that will be really valuable. The Horticulturist's Rule Book is one that will be of constant use to the fruit grower in his practical work, while the Annals of Horticulture is of special value to the horticultural student. The price of the books, bound in cloth, is $1.00; in paper, 60 cents.

REPORTS AND PAMPHLETS.

NEW YORK AGRICULTURAL STATION, eighth annual report, 1889, Peter Collier, Director. REPORT OF THE AGRICULTURAL STATION of the University of California, by E. W. Hilgard, Director, Sacramento, 1890. CALENDAR OF QUEEN'S UNIVERSITY, Kingston, Ont., year 1890-1891. TORONTO INDUSTRIAL EXHIBITION, September 8th to 20th, 1890. Prize list. H. J. Hill, Toronto, Manager and Secretary. SUMMER RESORTS reached by the Grand Trunk Railway. Season of 890. Compliments of William Edgar, General Passenger Agent, G.T.R.

CLOUDS.

OH, beautiful clouds with fleecy wing!
What pleasure ye to my memory bring
As I watch you in the azure skies
With uplifted spell-bound eyes.

Till, in fancy inspired, I upward soar
To a phantom ship, by a golden shore,
And sail o'er a beautiful ether sea,
Where the "White Island of the blest" may be.

On mountain side, I've sat for hours
Gazing on palaces and towers,
Sapphire thrones of beauty rare,
And grim old 'castles in the air."

Till the spirit of a storm sublime
Drove ethereal warblers from my clime;
Threw a pall o'er my outward being,
And all my air-borne inward seeing.

Mount Royal Vale. GRANDMA GOWAN.



Wilder Early Pear.

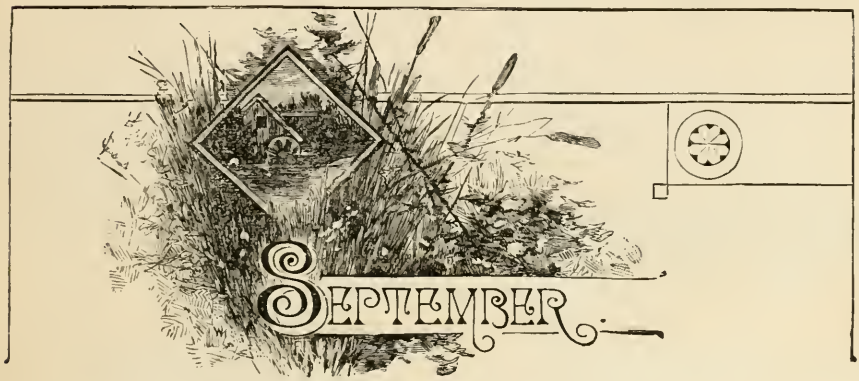
"Handsome, Melting, Sweet, Pleasant, Very Good." ELLWANGER & BARRY.
"It Has Come To Stay." HON. H. E. VAN DEMAN. "One Of The Best, If Not The Best Of Its Season." PREST. T. T. LYON.
"Good, Handsome, Pleasant." JOHN J. THOMAS. "Delicious, Worthy Of Trial." RURAL NEW YORKER.
"Best Quality Of Early Pears. Earliest Good Pear. Best Keeping Early Pear."
YOUNG TREES HAVE OFTEN MADE SEVEN FEET GROWTH IN FIVE MONTHS.

STECHER LITH. CO. ROCHESTER, N.Y.

THE

Canadian Horticulturist.

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THE WILDER EARLY PEAR.

WE have already a good many fine summer pears, such as the Osband's Summer, the Summer Doyenne, the Rostiezer, the Beurre, Giffard, the Tyson, Clapp's Favorite and Bartlett, but, as with the old fashioned stage coach, so among us fruit growers, "there is always room for one more," providing it is of the right kind.

That the Wilder is a pear to make growers rich might easily be inferred from what its introducers say, but we always fear some weak point in each of these novelties until we have proved it does not exist. However, we speak with some confidence of this pear, and of the Idaho, which was figured in January, 1889, because of the statement of Mr. Vandeman, United States Pomologist, who says in the United States Report of the Department of Agriculture for 1888:—"There are several new varieties of this fruit coming into notice each year, and I have selected two of the best for illustration and special description." Then follows a description of the Wilder and of the Idaho.

The Wilder is a chance seedling, found growing in Chautauqua county,

N.Y., and was first noticed by Mr. Charles Green, of Rochester, some six or seven years ago. The tree is a regular and heavy bearer, and the fruit is very beautiful. It is a firm fruit, suitable for distant shipment, and though gathered while yet hard, will ripen up to a golden color with a bright red cheek. It is delicious to the taste, and edible to the very core. While not a large pear, it is much larger than the Seckel, and its chief merits are its earliness and great productiveness. Its time of ripening is about the 1st of August, a time when the market is bare of good pears, and anything fancy would bring a good price.

The following description of the Wilder pear is given by Mr. Vandeman :

Size, small to medium; shape, pyri-form, bell-shaped, irregular, a little angular; surface, smooth, pale yellow ground with deep shading of brownish carmine; dots very numerous and small; basin, shallow, regular; eye nearly closed; sepals long and reflexed; apex rather abrupt, with a slight cavity; stem short; core closed, very small; seeds very small, narrow, pointed, dark; flesh very pale, whitish yellow, fine grained and tender; flavor, sub-acid, sprightly, much like Bartlett; quality, very good; season, August, in Western New York.

CAN STRAWBERRIES BE CONTINUOUSLY GROWN ON THE SAME LAND WITH PROFIT?

I HAVE no doubt the reply from many would be :—Certainly they can; if the ground is kept in suitable condition.

I have been growing strawberries for market for over forty years, and have often tried renewal, but have never found it profitable. After taking off the second crop of fruit, I have summer fallowed, manured heavily, and generally the following year have obtained a satisfactory crop of roots, corn or potatoes, which left the land, as I long supposed, in the very best condition for growing strawberries or any other small fruit. Yet with me, the yield of the second planting has never been half as large as that of the first; hence I conclude that there must be some peculiar element, mysteriously essential to the growth of the strawberry extracted from the soil with the first heavy croppings, and that I do not know how to replace it.

In European gardens strawberries have for many generations been grown as a rotation crop, and I have seen strawberry beds fifteen years old, but it certainly could not be said that they were productive, although luxuriant in foliage; and this is what seems to me so remarkably strange—plants can be grown well enough and as often as you please, but they do not produce the fruit.

Doubtless some of your readers in Canada have seen strawberries produced at the rate of 12,000 quarts per acre with a single crop, and without very much foliage. If any of your readers who are growing strawberries the second or third time on the same ground, have succeeded in procuring more than half that quantity per acre, they might tell us what they put on the land, how it was applied, and what the cost of it. Or perhaps they might tell us what ingredient their soil contains, which makes it continue to produce strawberries abundantly. Many others besides myself would be very thankful for such information.

Thirty years ago the celebrated nurseryman, Mr. Wm. B. Smith, of Syracuse, told me that I need never attempt to raise a second crop of apple trees on the same ground. I highly valued his opinion, yet in my conceit at that time I thought that with plenty of manure and hardwood ashes I might succeed. I tried it thoroughly, and most thoroughly failed.

Ignoring that worthy gentleman's advice in this one instance cost me many hundreds of dollars.

I have seen many decaying old orchards cleared off and replanted with young trees; but no matter how well the ground was tilled and manured, the second planting has almost invariably resulted in failure; this I attribute to the want of that mysteriously necessary element which has been extracted from the soil by the old orchard trees.

Whole districts in which strawberries were profitably grown a few years ago are now fruitless. Will the country cease to produce this delicious fruit? I hope not.

Cataraqui, Ont. D. NICOL.

A PROFITABLE PLANTATION OF RASPBERRIES.

WE wholly disapprove of making public the great successes which a few growers of fruit have had and the hiding of the reverses and discouraging failures of others; because the world is so full of greenhorns that some will be sure to catch the notion that a fortune awaits them if they can but purchase a fruit farm; yet we must be honest and give the bright side when it does appear. The other day it was a St. Catharines grower, whose bean story almost equalled a Yankee squash story, according to which he harvested seven tons (?) of green beans off from one acre of ground and sold them to a factory near by; but to-day it is a Grimsby fruit-grower who has just finished harvesting his Cuthbert raspberries. He says that he has picked one hundred and seventy crates, of twenty-four quarts each, off from three-quarters of an acre of ground; or over four thousand quarts. Now, these were all extra fine in size and worth on an average ten cents a quart in our city markets, or about $400 for the produce of the one acre.

Counting the expense of marketing and baskets at $100, we have three hundred dollars as the net proceeds of three-quarters of an acre of ground in the fruit district of Grimsby. Can any growers in any other part of Ontario beat this ?

Mr. Jonathan R. Pettit, for that is the gentleman's name, is the same person as is referred to on page 245. He states that he began harvesting his Cuthberts about the 10th of July, and now on the 10th of August he believes there could be several more crates got by carefully going over the vines, but he has given the gleanings to his pickers. Off one row, 260 feet long, he has gathered over 240 quarts, or nearly a quart of berries to every foot.

Of course there are exceptionally favorable circumstances to be mentioned in explanation of all this, as will be easily supposed when we state that we know of an acre and a quarter of the same kind of berries near by which only yielded about seven hundred quarts.

In the first place, and most important of all, the ground was right ; even our fastidious friend Mr. Morden would have to acknowledge this. In this, no doubt, lies the chief explanation. It is a rich sandy loam, somewhat moist, even in the driest part of this dry season ; ground that will never bake no matter when it is worked, or what the kind of season. On this ground the bushes grow to an enormous height, and the fruit attains an unusual size.

How much is due to his method of pruning is yet to be demonstrated. It is not in accord with the practice of most growers, but the many are not always in the right.

Constant cultivation is an important feature in his management. No weeds are ever allowed to dispute the ground with the raspberry canes, and these latter are always thoroughly thinned out, all superfluous ones being treated as weeds.

HOW TO MAKE THE MOST OF TEN ACRES OF LAND.

THIS was the subject of Mr. E Morden's address before the Ontario Fruit Growers at their summer meeting at Niagara, and as Mr. Morden has himself proved what can be done with a small acreage, what he says is worthy of attention. The following are some of the points made :

The first requisite to success is the right man in the right place. By the right place I mean that he should be situated near a good supply of fertilizers, and near a good local market. I do not believe in wearing out my life in making express companies rich. I mean also that he should be near a good shipping point, so that he can send away his surplus, and he needs

also a place where the soil is right for his business. I am of the opinion that it is easier to buy the right kind of soil than it is to make it after you have bought that which is unsuitable.

In planting small fruits, etc., it pays to use the plough a great deal, and to mark out in such a way that the plants can always be cultivated in two ways.

At the outset, two crops may be grown ; for instance, with grapes, by planting twelve feet apart, the space intervening may be utilized with vegetables.

What should be planted in order to realize the most money will depend upon the soil. On a clay loam, for instance, I would plant largely of currants, but on a light sandy soil I would plant few currants. In suitable soil I find currants profitable, and gooseberries also on a moderate scale.

Raspberries I have grown very largely, and have found them as profitable as any other fruit. I always cultivate them two ways.

My method of sale is to take orders from private families, dealing as much as possible with them ; because in this way I can get back all my baskets, and, with them, the cash the same day.

Blackberries, grapes, quinces, with a few plums and pears, are all suitable to be grown on a ten-acre lot.

One great secret of success is constant cultivation, and this there is no reason to neglect on a small place. I sometimes cultivate and hoe my fruit garden as often as fifteen times in a single season.

HOW TO GET BIG BERRY CROPS.

MR. L. B. PIERCE, writing in *Vick's Magazine*, gives some excellent hints for success in the culture of raspberries and currants, from which we take the following points :

For Black Cap Raspberries or Currants there is little danger of getting the ground too rich. A study of the native haunts of the Raspberry, growing by decayed stumps and logs, and in rich fence rows, should convince anyone what the needs of this fruit are. Raspberries seem to take considerable from the ground, and, unlike Blackberries, leave it after a few years very much impoverished. The difference in the first crop of raspberries between rich and poor soil is wonderful. A neighbor last year gathered two and one-half bushels of Gregg Raspberries from three rows twenty-four feet long. The canes arch seven feet from the ground, and are wonderful to see. The ground is a rich garden, and was top-dressed with fine manure.

An acquaintance planted one thousand Gregg Raspberries on a barn lot of very rich soil, and gathered, fourteen months later, thirty bushels of fruit.

Encouraged thereby, he planted five acres on ordinary or rather thin soil, and has not gathered an average crop in three seasons. A city florist and tree jobber planted four Doolittle Raspberry plants where a compost heap had lain. The growth was extraordinary; they were twice pinched back and one of the plants produced sixty-one canes that reached the ground and took root.

The experience of J. M. Smith, of Wisconsin, of Peter Henderson and others, is that the ground that is full of humus and the unused portions of manure used in vegetable gardening is the best for heavy crops of strawberries.

On account of the white grub it is necessary to plant sod ground two years in hoed crops to give this pest a chance to get out of the way, and the common practice is to manure in the spring that the strawberries are planted, or more frequently not manure at all. I am convinced that ordinary manuring just before planting does not pay in proportion to the cost, as in the nature of things much of it does not become available until too late to help the growth. It is far better to manure heavily the crops of corn and potatoes in the years of preparation, and thus get a double recompense. All berry men agree that the first crop of strawberries is the one to work for, and the extraordinary yield of two hundred bushels and upward per acre is only obtained by the most careful attention to all those details that give the highest yields of ordinary farm crops.

In fitting the ground, it is best to begin early, first ploughing deeply, then pulverizing finely, and finally floating down flat with a plank finisher or boat. When the earliest farmers plough for oats then fit the ground, even if it is a month or six weeks before planting. Weeds will start, but a sweep of the trowel removes those where the plant is to be placed, and cultivation between the rows can commence at once, destroying the weeds and aerating the soil.

The poorest part of a fruit farm may be planted in blackberries, with a dead certainty that the land will improve in quality, and that the berries will be less subject to winter-killing. If desirable the ground can be top-dressed at any time afterward, by leaving the manure in piles in the cross-paths and distributing with a hand-cart or wheelbarrow. The blackberry not only sends its roots all through the soil, but has large and abundant leaves which hang on until early winter snows bear them to the ground, where wet and heavy they never blow away, but lie to form a mulch and aid in the nutrification of the soil. In this way the blackberry not only holds its own, but slowly gains on the soil.

THE OUTLOOK FOR FRUIT IN MANITOBA.

SIR,—As many of your readers are aware of the effort in fruit raising here, and as I am greatly indebted to Prof. Saunders, Mr. Gibb and others for courtesies in furnishing me with trees, shrubs, etc., for experimental work, and my time is so taken up that I cannot send separate reports to each kind friend, allow me to give a few jottings, which I trust will be interesting to your readers.

The Saskatoon (June berry) is very abundant. This berry is worthy of propagation. It grows here a good deal larger than the Black Naples cur-



FIG. 61.—THE SASKATOON BERRY.

rant, and makes nice preserves. Wild plums and cherries (red and choke) are also very plentiful, but I write to tell you of cultivated fruits.

Strawberries.—The Crescent, Downing, Glendale, Champion, Wilson and Jessie have borne well. In novelties, I had one specimen of the Britain, five inches in circumference, a little larger than the Jessie.

Currants.—The Fay's Prolific bore its second crop, and finer berries I never saw. The White Grape was more abundant and second in size. Red Dutch, Victoria, Holland, Black Naples, Lee's Prolific and Stewart's Seedling, all bore a fair crop of fine fruit.

Gooseberries.—Houghton and Downing were loaded. Smith's Improved and two or three other varieties mildewed somewhat, but had a light crop.

Raspberries.—Turner succeeds without protection, and is now carrying a heavy crop. Cuthbert, Philadelphia and Golden Queen, with protection are doing pretty well. A blackcap (perhaps the Doolittle) is bearing fairly.

Blackberries.—Ancient Britain, Snider and Taylor (protected in winter) are fruiting nicely. The Windom and two or three other dewberries are yeilding their first fruits of fine luscious berries.

Plums.—I have collected some forty kinds of North-west sorts, from Minnesota, Iowa and Wisconsin, and this year have five kinds carrying specimens, viz.: De Soto, Speer, Sendloff's Seedling, Newton Egg and one without name.

Cherries.—Prof. Budd's Ostheim blossomed and formed fruit, but fruit has dropped. Prof. Saunders kindly sent me two of the Koslov Morello, which are doing well. He also sent me one Besarabian, which has made a good growth.

Pears.—The Russian Gakovska froze out last winter. I have received from Ottawa twenty-five from Russian seed, which may do better.

Apples.—Of some eighty varieties of apples and crabs the following after three years' test seem the most promising: Gideon's Seedlings, Pearce's Seedlings, Russian Liebz, Rubetz Naliv, Hibernal, Antonovka, Red Cheeked, Red Repka, Istovka, Ostrakoff. Some of these look like blossoming next season. In crabs and hybrids, Whitney No. 20, Transcendent Dartts, Gibb, Hyslop, seem among the most promising.

Forest Trees and Ornamentals.—The Manitoba White Elm, Ash, Soft Maple and Box Elder are succeeding very well; Butternut I am hoping to raise; the Persian Lilac flowered abundantly; Spiræa Ballardi and another are now in blossom, so is an Althea. Tamarax Armurensis has beautiful foliage, but I doubt whether it will flower. The John Hopper, planted outside, had one beautiful rose; Caragana, or Siberian Pea, after three years' trial without injury, promises well for an ornamental hedge plant. The Russian populars, notably Certinensis, Petroviki, Laurifolia and Boleana are an acquisition and are doing well. Salix Fragilis and Aurea are beautiful trees.

I would like to get promising varieties of gooseberries for testing, and would be glad to hear from any of your readers on the subject. Hoping I have not transgressed too far.

Stonewall, Man., August 4, 1890. THOS. FRANKLAND.

CENTRAL EXPERIMENTAL FARM.

THE President Mr. A. M. Smith, ex-President P. C. Dempsey and myself were a contingent selected to examine the small fruits at the experimental station here, on July 22nd. The raspberry season was well commenced; gooseberries were beginning to ripen, and the early

black currants were assuming their Ethiopian hue, the day was bright and warm, dame nature was smiling from every feature of her lovely countenance. The committee were received by Mr. Saunders the director in his usual genial style; we were all old friends, he having been President of our Association for several years previous to his receiving his present appointment. After partaking of slight refreshments at the house at 10 a.m. we sallied forth to inspect the plants and fruits. It is not too much to say that the wand of the magician has passed over the farm since its purchase some three years ago; stumps and stones have been removed; rough ground has been made smooth; fences have been built; houses, barns, stables, museum and a laboratory has been erected, and on every hand marks of progress, industry and its results are observed. Lovely belts of deciduous and evergreen trees almost surround the farm of over four hundred acres, whilst excellent roads wind with graceful sweeps among clumps of trees and shrubs which have been imported from the four corners of the earth. Nothing appears to have been neglected or overlooked to make the farm attractive and ornamental, whilst for actual utility it would be difficult to think of any experiment that is not being tried, or is not contemplated in the future. In the laboratory Professor Shutt is working out the value of feeding plants. When visited, he had over his gas jet in a platinum trial gauze basket some lamb's quarter, of which he was obtaining the ash. On enquiry being made he explained that this plant was a profuse grower in Manitoba, and he was testing its value as a cattle food.

The director is great on hybrids, and crosses are being made in various directions between grains, flowers, fruits and vegetables. Seedlings are being raised from these crosses, as it is a well known law of nature, that when once the original tpye of a plant is broken down by a cross, the seedlings obtained sport in every conceivable direction. Then there are experiments going on to test all the different varieties of wheat, oats, barley, potatoes, etc., of which small sections have been planted of hundreds of kinds selected from the known world.

I noticed the barley from India, the straw of which is about nine inches long, the head is heavy, and it was turning yellow to ripen when all the other kinds were yet green. There were also patches of oats and grains sown at the earliest possible moment when the spring opened—the land having been prepared during the previous autumn—these were repeated, the same grain being sown a week apart for six or seven successive weeks. The result will show the probable proper season for the seeding of this [illegible]

The experiments in manures, artificial and others, are varied and extensive. Quite a number of trials are being made with chemicals for the destruction of various kinds of fungus growth, and the insect enemies that ravage our grain and fruit crops. Amongst these pests, mildew, apple scab, blight,

borers, codling moth and canal worms may be enumerated. I have left out all about the horses, cattle, chickens, etc., because what one sees in a day would fill a volume, and I want to say a few words about the small fruits. We first inspected the cultivated varieties, of these I think Heebner's red raspberry and Hilborn black carried off the palm, with Golden Queen for yellow, but when we came to the director's own hybrids and seedlings, we came to the conclusion that at least fifty of these could be selected that would beat any raspberries in cultivation. The gooseberries were a failure; a number of these were of the British varieties and had mildewed badly; others had not been properly protected from insects. And at any rate the gooseberry crop in this section was for some reason light all along the Ottawa valley, though it promises well in the spring. There were some two hundred varieties of seedling black currants, the sandy, hot, poor soil on which they were grown did not do them justice; some were early, some late, some very sweet, whilst others had a highly pronounced black currant flavor. Amongst these seedlings many were of marked merit, probably the best bearer on the longest stems was the wild Manitoba variety, but the berries were green and hardly at full size, so late are they in ripening. No doubt the director will seize on this as the parent of some future experiments in hybridizing. An excellent repast was served at noon, and at 6.30 the committee returned to town well pleased at all they had heard and seen. It was suggested to the director that he should disseminate his new seedling raspberries as premium plants with the HORTICULTURIST to our Association. He may probably do this when a sufficient number of plants are propagated. I trust he may, as a more valuable lot this fruit has never produced. I may safely say what Roger's was among grapes Mr. Saunders' will equal amongst raspberries. It would be difficult to over-value the benefits the farm will confer on the Dominion, when the reports are issued containing the results of these exhaustive experiments.

The tests made as to the hardiness and adaptability of plants and trees, especially those of the fruit bearing varieties, will be thoroughly appreciated in this section, as it was supposed only twenty years ago that the land in this district, owing to the rigor of the climate, would only produce the hardiest wild kinds of fruit. These experiments could not possibly be so new and carefully made by private hands; not only would the cost be too great, but they have to be carried on at a season when crops are being attended to, and no farmer or gardener could afford the time to carry them out. The practical results are what we are all looking for, and these will be had in the published official reports and thence disseminated by the newspapers. The Hon. John Carling is to be congratulated on inaugurating so useful an institution, and on the excellent staff of officials which he has collected together for the work.

Ottawa, July 28, 1890. P. E. BUCKE.

DANAIS ARCHIPPUS.

SOME subscriber sent us by mail the other day, in a small box, the beautiful green, gold tinted chrysalis of this butterfly. During transit, the warm weather had caused its exit from its cocoon, and it was vainly endeavoring to expand its beautiful wings in its pasteboard prison. Our engraving Fig. 60 is an excellent representative of this Archippus butterfly, which appears in the months of July, August and September, and is very



FIG. 62.—THE ARCHIPPUS BUTTERFLY.

widely distributed. It is a great traveller, and we often read of its migrations, in great swarms, either toward the north or the south. Mr. Bowells, of Montreal, speaking of it in the Entomological Report, 1880, page 30, says he has seen upon the shore of Lake Ontario, near Brighton, hundreds of their dead bodies cast up by the waves, and which had no doubt formed part of a swarm that, from weakness or some other cause, had perished while flying across the lake. The larva of this butterfly is shown in Fig. 61. It has a pair of projecting thread-like horns on the front and rear portions of its back, one on the second segment, and one on the eleventh, and the body is banded with yellow, black and white. They feed upon the milk weed, *Asclepias*, and their migrations are probably explained by the instinctive desire of the mother to deposit her eggs upon this plant, where the young caterpillars may find abundant nourishment·

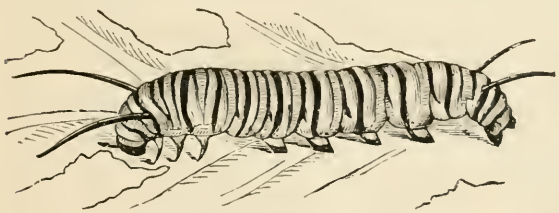


FIG. 63.—LARVA OF DANAIS ARCHIPPUS.

SPARE THE ROBINS.

NOWADAYS, when every boy thinks himself an ornithologist, and therefore entitled to steal the eggs from every bird's nest, and even to destroy without mercy the sweet songsters themselves, under the plea that all are destructive to the cherry crop, it is refreshing to read such an article as one that appeared in the *American Agriculturist* for the month of July, 1890, entitled "Value of birds to the Farmer."

After referring to the foolish "Scalp Act" of Pennsylvania, by which the State expended $90,000 in bounties for owls and hawks to protect $2,000 worth of chickens! the article proceeds to speak in the following terms of the robin:—"This is one of the most useful of our common birds, notwithstanding it has the audacity to eat a few cherries, for which depredation it is often shot by the exasperated owner. Henry Ward Beecher once said, "The man who would shoot a robin, except in the fall, and then really and conscientiously for food, has in him the blood of a cannibal, and would, if born in Otaheite, have eaten ministers, and digested them too.' The robin is one of the most useful of all our birds in destroying insects which are most injurious to fields and gardens. Robins rear two or three broods of young each season, and it requires large numbers of worms and grubs to feed them upon. The quantity of worms required by a young robin is suprisingly large, being more than its own weight, daily. Sometimes the young are fed almost exclusively upon cut-worms. The horticulturists near Boston once petitioned the Legislature to strike out the name of the robin from the list of protected birds. A committee, one member of which was Prof. Jenks, was appointed to investigate the habits of the robin. Prof. Jenks clearly proved that the bird is a benefactor. From daily examination of the contents of the robin's stomach, he found not a particle of vegetable food from early March to the first of May. Nine-tenths of all its food consisted of the larvæ of the *bibio albipennis*, of which from one to two hundred were sometimes taken from a single bird. This larvæ is very destructive, feeding on the roots of plants, injuring strawberry plants, vines and other plants. The fly into which this larvæ developes hatches in May, and infests wheat and other products. A few robins in the vicinity of a garden are the best means of protecting the plants from the ravages of the cut-worm, and other destructive worms and insects. A single pair of robins, in rearing two or three broods of young, must necessarily destroy a vast number of worms, grubs and other insects in a single season. The gardener or farmer who would shoot a robin, or allow one to be shot on his premises, is strangely blind to his own interests."

AN IMPROVED FRUIT PICKING STAND.

THIS device, patented by Mr. Jesse C. Greenlow, of Pepperwood, Cal., is preferably made with a triangular base to allow it to be supported on three wheels and more readily moved in and out among the trees. The middle beam of the base frame is adapted to be engaged by the forked lower end of a vertical post, held in place by braces from the corners bearing under an offset on the post, the braces being removable to permit of conveniently taking down and setting up the post. A triangular platform is held to slide vertically on the post, the platform having an upwardly extending sleeve which fits the post, and has bearings for a shaft carrying a gear wheel meshing in a rack on one side of the post, as shown in Fig. 64. This shaft has a crank arm by which it is operated by one standing on the platform, and a ratchet wheel on the shaft is adapted to be engaged by a pawl fulcrumed on the sleeve and connected by a chain with a treadle. On one side of the base is a short ladder, to facilitate reaching the platform when it is in its lowest position, the operator then raising the platform by means of the crank arm and its connected gear and rack. The pawl and ratchet hold the platform in position when the desired height has been reached, the pawl being disengaged by pressing on the treadle when it is desired to change the position of the platform or lower it to the offset. The several parts can be readily disconnected for convenience of transportation or storage.—*Scientific American.*

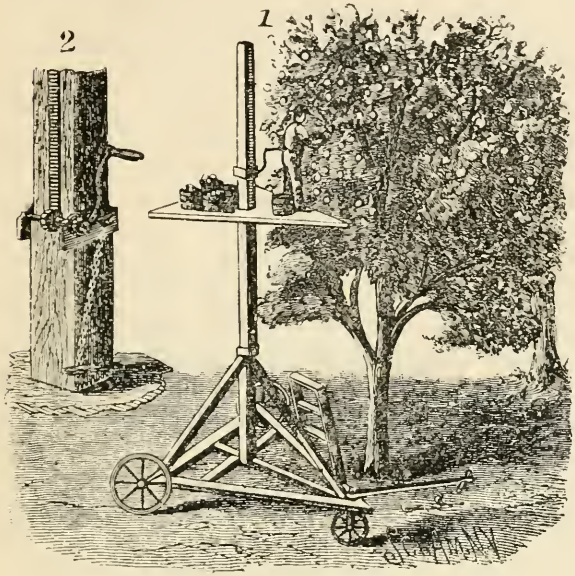


FIG. 64.—GREENLOW'S FRUIT PICKING STAND.

MR. E. J. PHIPPIN, of Park Hill, Ont., grafted two or three kinds of pears on a Mountain Ash, and the grafts have all grown well and appear to unite perfectly, and give every evidence of vigor. The results will be anxiously looked for by those especially who feel an interest in "stock and scion" and the influence of the former on the latter.

THE FRUIT CROP IN QUEBEC.

SIR,—The apple crop with us is a light one this season, about 60 per cent. of a full crop, and poor in quality, owing to the scab. Especially is this the case with the Fameuse. Fameuse and Duchess are more generally planted here than any other variety and are both bearing fairly well, especially the Duchess, which is up to the average, while in winter varieties we have hardly any fruit, although the bloom was unusually good.

Not many pears grown here. The Flemish Beauty is the favorite for this latitude and is bearing an average crop.

Propagated varieties of the plum are a failure this season, while the native red plum is trying hard to redeem the position, the curculio will be by far the largest consumer.

Grapes, not an average yield, are grown here for family use only, Delaware, Lindley and Champion being the best croppers.

The tribute paid by the CANADIAN HORTICULTURIST to the memory of the late Mr. Chas. Gibb was most gratifyng to his many friends here. For the last seventeen years he was the leading spirit in the fruit interests of this Province, and will be sadly missed by many as the time approaches for the Annual Meetings and Exhibitions, at which he was an authority, especially in the nomenclature of the New Russian and German fruits, through his energy so recently introduced to this country.

Here at Abbotsford is to be seen much of his experimental work by the numerous specimens both of fruit and ornamental trees and shrubs, planted on his own grounds, many of which give promise of value.

The ornamental for their great beauty, and the fruit trees for their general adaptability to a climate so severe that nothing short of an "iron clad" will survive for many seasons. Our fruit growers through his death have lost a useful member, and though cut off in the midst of a good work, his example will long live in the memory of his friends here, and all who had the pleasure of his acquaintance. May others go and do likewise.

Abbotsford, P.Q. J. M. FISK.

FRUIT JUICES.

A RECENT admirable article in *The Rural* on "Preserving Small Fruits" omitted one method much liked by this household. It is to prepare fruit juices as if for jelly, sweeten to taste, boil one minute, and put away while hot in small cans or in bottles. If the latter are used, the corks must be sealed with wax. This preparation makes a palatable and healthful tonic, especially useful for tired housewives and ailing people.

It is not to be confounded with home-made fermented wines, for if properly made and kept in air-tight vessels in a cool dark place it will not ferment more easily than will fruit canned entire.

Juices put up in this way, particularly those of the currant and cherry, without sweetening, and used in combination with Spitzenburg apples in winter, make a delicious jelly, very acceptable at a time when the supply of summer-made jellies is nearly or quite exhausted. Our way—which we think a good one—of extracting the juice of fruit differs from that given, in that we add no water to the fruit, but put it dry into a closely-covered stone jar, which is placed in a kettle of water, brought to the boiling point, and kept at that stage till the fruit is thoroughly steamed, it is then strained and measured in the same careful manner laid down by "Katherine B. J." But juice so extracted, being undiluted with water, does not require more than eight minutes' boiling to make firm jelly—less if the fruit has ripened in a dry time—before adding the heated sugar, and no boiling after but it must be stirred a bit till the sugar is dissolved.—*Judy Jones, in R. N. Y.*

Vegetables

BLEACHING AND KEEPING CELERY.

THE Dwarf Celeries now used by most cultivators are grown on a level surface in rows four to six feet apart. Handling is the first work towards bleaching. I use cotton cord, and tie it loosely around the first plant, and then passing the string to the next, take a turn around this, tying it the same way, and continue through the row without breaking the cord, which is tied to the last plant. In this process all the leaves are gathered and tied firmly enough to hold the plant erect and compact. If tied too tightly the Celery, as it grows, will double back when the string is reached, and injure the appearance of the heart. After the Celery is banked with earth, the string rots under the ground and gives no trouble at the time of digging.

Many methods of bleaching are practised. During the past season I saw heavy paper tied about the plants by one grower, and earth was then drawn up against the paper. Another grower placed corn-stocks against the plants to hold them upright, and then banked against these. A third tied each plant separately with tobacco cord, and left them without banking and exposed to all weather till November 1st, when they were carried into deep hot-beds to bleach under leaves and boards. Another banked the

plants half way up, and still another covered Celery almost to the tops. This last lot bleached in from two to six weeks, according as the weather was warm or cool.

The warmer the place in which Celery is kept, the quicker the bleaching will be complete. In early fall, bleaching causes little trouble, whether it is done by tile, paper, boards or earth.

The great difficulty is to keep Celery through the winter into late spring. That intended for late keeping ought to be left out-of-doors in the rows until severe freezing is threatened, and it should be banked half way up at least. The part out of ground should be protected from hard frost, for this makes the stalks hollow. After the plant has been taken from the ground, it will still continue to grow. If the leaves are green when stored, they will remain green, and a growth from the centre will appear, which will always be white. Celery partly bleached when brought in will be better in quality than if the whole process of bleaching be left till after digging from the garden.

Darkness with a temperature of sixty degrees in the cellar will fit celery for the table quickly. If it is to be kept until spring, then a temperature as near forty degrees as possible should be maintained. Last season I saw 100 roots brought in before a hard frost, and set on a cellar floor and against the wall, in a space ten by four feet and filled in with dirt half way up the stalks. The hatchway door above was open daily, and the winter air drifted down upon the Celery, which kept until April, when more than half of each bunch, as put in, in the fall, was eatable. The tops were kept cool and often frozen, while the dirt between kept the stalks crisp; there was no furnace in the cellar. I see no advantage in trimming the roots before bringing then into the cellar.—*W. H. Bull, in Forest and Garden.*

MEDICINE IN VEGETABLES.

THE following information may be useful to some at this season of the year, if not to many, says the *California Farmer and Dealer*:

Spinach has a direct effect upon the kidneys.

The common dandelion used as greens is excellent for the same trouble.

Asparagus purges the blood. Celery acts admirably upon the nervous system, and is a cure for rheumatism and neuralgia.

Tomatoes act upon the liver.

Beets and turnips are excellent appetizers.

Lettuce and cucumbers are cooling in their effect upon the system.

Onions, garlic, leeks, olives and shalots, all of which are similar, possess medical virtues of a marked character, stimulating the circulatory system,

and the consequent increase of the saliva and the gastric juice promoting digestion.

Red onions are an excellent diuretic, and the white ones are recommended to be eaten raw as a remedy for insomnia. They are a tonic and nutritious.

A soup made from onions is regarded by the French as an excellent restorative in debility of the digestive organs.

A GENERAL ESTIMATE OF THE FRUIT CROP IN ONTARIO.

MR. A. McD. ALLAN, who is constantly moving about through the province, writes:

"*Apples.*—The kinds bearing fruit this season are, so far as I have seen, chiefly these: Early—Duchess, a heavy crop generally and good clean fruit; Red Astrachan, scarcely one-quarter crop, specimens poor. In fall kinds there is a small yield, and kinds vary very much in the different sections: Gravenstein is, on the whole, as good an average as any, although it is not grown in general; St. Lawrence poor in specimen and not one-eighth crop in best sections; Alexander, good specimens but not one-quarter crop; very few Fall Pippins.

"*Winter Apples.*—The Ontario seems to be a very fair crop and in many cases very heavy crop, with quality fair. Some signs of spotting. When I give Spy, Russet and Baldwin the bulk of the crop is named, speaking generally, but even then there is not one-quarter crop, taken as a whole. What a come-down from our early expectations! Alas our estimates! how cruelly cut down by the blight! It is noticeable that seedlings are generally a fair crop.

"*Pears* are over one-half a crop in Clapp, Bartlett, Flemish, Buffam, Lawrence, Louis B., Keiffer, Vicar, Tyson in many sections, and in some sections Clapps, Tyson, Buffam, Lawrence notably are very heavy.

"*Plums* are a fair crop in leading plum sections, especially the old reliable common blue.

"*Grapes.*—A good crop generally.

"Taking all these on a scale of say five as full or heavy crop, I would put them about as follows: Early apples—Duchess, four; Astrachans, three-quarters to two; Gravenstein, one to one and one-half; Baldwin, one; Spy, one and three-quarters; Russet, one and one-half; Ontario, three and three-quarters; Plums, three and one-half; Pears, two and three-quarters."

✳ Forestry ✳

GROUPING TREES IN PARKS.



IT is one thing to plant—and almost anyone may in some way accomplish the task—but it is another thing to plant effectively, for it needs a true artist to do this successfully. A wide range of acquaintance with the aspects, habits and dimensions of plants, their development of special features, times of flowering, alternation of tint, the positions best suited to bring out their beauties, or to be beautified by them, are all matters of importance, and calculated to tax the skill and taste of the most experienced and accomplished. Grouping is a department of ornamental planting at once the most effective and the most difficult. There is a wide difference between a group and a clump. A clump is usually a mass of planting, formal and monotonous in aspect; whereas a group should present an infinite variety of form and outline, all the material of which it is composed retaining a certain amount of individuality, and yet blending in happy and graceful unison, free from trim formality, as also from absurd incongruity; and he who would accomplish the art of thus planting cannot do better than become an earnest student of Nature herself. As a rule, groups should be bold and dense; anything like thinness has a mean and poverty-stricken aspect, which should be carefully avoided. The outlines of groups both on the ground and against the sky should be carefully designed; the ground lines should be easy and flowing, free from false curves and anything approaching to rigidity; the sky line widely diversified, but ever harmonious—here rendered strikingly by the upshooting of some plant of distinct character, anon merging easily and naturally into lines of smoothness, graceful as those of Nature herself. Thus will be secured those exquisite effects of light and shade so full of charm and beauty to the eye capable of their appreciation. These features are of the greatest importance in the immediate vicinity of water, where shadows and reflections are ever changing and ever new. Again, park and other like groups should always be accompanied by a few irregularly-planted trees, such as Thorns, etc., especially at their salient points; this happily removes all stiffness, and gives a natural expression to the whole. The composition of groups should always be ruled by the position they occupy. On the lawn, the plants employed should be rich and elegant; in the park or on the hillside, noble and majestic; near water partially pendulous: and not only so, but the general aspect of the locality and the style of the house should also be taken into account, as certain trees are more in unison with wild and

others with sylvan scenery. It is also usually laid down as a rule that pyramidal forms harmonize best with Grecian and round-headed forms best with Gothic styles of architecture. This rule, however, must be understood as of general rather than minute application, or a most unnatural and monotonous effect will be the result. Groups may be composed of one or more species or varieties, and, if carefully executed, with equally good results. As a rule, the plants should differ in size, in order that the outline may be more varied; if the group be of irregular form, the largest plants should be placed in its centre and salient curves; it will thus gain in dignity, and be far more natural and pleasing than if faced by a stiff gradation. Mixed groups should be composed of such trees as harmonize or contrast well with each other.—*The Garden.*

THE SCARLET OAK.

MOST planters who grow this fine American Oak are thoroughly aware of the beauty of its large leaves during the summer, and the brilliant autumnal color they assume before being shed. It grows, too, in almost any soil, and soon forms a distinct and handsome tree. The beautiful tints of the second growth are also a recommendation; in the arboretum at Kew and in other places trees of this species are now very conspicuous, the bronzy red of the young shoots and leaves forming a striking contrast to the older foliage.—*N., The Garden.*

A PROFITABLE TIMBER TREE.

THE wild Black Cherry (Prunus serotina) grows rapidly, and its timber realises as high a price in many markets as Black Walnut. It is much more profitable than the Black Walnut, as many more trees can be grown to the acre. It is not so detrimental to other vegetation as the Black Walnut. Another great advantage the Cherry has over the Black Walnut is that it is ready for the cabinet-maker in less than half the time required for the Walnut, and to this may be added the advantage that it is more cheaply grown. One bushel of Cherry seeds will produce as many seedlings as twenty-five bushels of Walnuts, and the Cherry is more easily dug up and transplanted. In all this I would not be understood as saying one word against the Black Walnut as a timber tree. It is a very valuable tree, as is well known to everybody, but Black Walnut trees will not al make saw logs when planted two feet or three feet apart. The common-sense way would be to plant them at least twenty feet apart, and fill in with cheap, rapid-growing trees that could be cut in time, leaving the whole space

to the Walnuts, for it should be borne in mind that the Black Walnut sapling is of very little use. The Black Cherry is found from the Canadian lower provinces to Florida, and from the seaboard to Kansas and Nebraska. The Black Walnut has about the same range, both apparently "running out" in Northern Wisconsin and Minnesota. The Black Cherry will make a rapid growth on much poorer land than will the Black Walnut. It grows well on a light, sandy, gravelly loam, and succeeds best on dry land. Where the ground is naturally moist the Black Walnut will flourish and should be preferred.—*R. Garden.*

SHELTER AND SHADE.

HAVING discovered that I have missed much in not making freer use of evergreen branches, I haste to remind others likewise neglectful of their value. If the cut ends are placed towards the direction from which our severest winds come they keep their places well. Seeds are sure to germinate in their shade, and tender plants are protected from late light frosts. Last fall I placed over them forest leaves for winter protection, and delighted in the "holiday" attire of my garden. Alone, they are the best covering for Pansies, not only as a safeguard against frost, but also stray fowls, who are very fond of their buds when vegetation is scarce. Stripped of their leaves they may serve the latter purpose later, or be left for a framework over which may spread trailing or climbing plants. Where wild growth is plentiful they can be secured with little trouble.—*Vick's Magazine.*



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

GROWING CURRANTS.

E. P. POWELL, of New York State, speaks highly of the currant as a market fruit. He says that the demand is never met by the supply, that he never fails to get as much as eight cents a pound for his fruit, and, this summer, has averaged ten cents, while he believes it would pay at five cents. The varieties which he finds best for market are Versailles and Fay, of which he prefers the former. He speaks unfavorably of the Cherry, as having a short bunch and being a comparatively poor cropper, while he recommends the White Grape for table use.

Our favorite, so far, has been the Cherry currant, that is, when grown on suitable soil. On a light dry sand it is a failure, even with the best of cultivation and manuring, but on heavier soil, with good cultivation, it yields prodigious crops of fine large bunches, with berries of a magnificent size. Nowadays it appears to us that size and beauty go further with our buyers in the markets than any other qualities, and we have never yet grown any currant to equal the Red Cherry in these respects. True, the White Grape is an excellent currant for table use, and might pay in the home garden, but there is no money in it to grow for market.

Mr. Powell does not speak favorably of the Crandall. He says the bush lops about and must be tied to stakes; and in size and in flavor it is no improvement on the ornamental varieties. Certainly, from what we have seen of it, it is a grand improvement on them, as far as productiveness is concerned.

THE NEW GOOSEBERRIES.

MR. JOHN CARNIE, of Paris, called at our office on July 30th to exhibit a box of samples of a fine green gooseberry which he has been growing for the past eighteen years. It is one of twenty varieties which he brought out with him from Scotland, and while the others were subject to mildew, this one had been entirely free. He considers it a variety well worth general cultivation; unfortunately, he has forgotten the name. It is not so large a gooseberry, nor is it so fine looking as Sutherland's seedling elsewhere referred to, but it has a rather more pleasing flavor.

New gooseberries seem quite plentiful these days. The *Rural New Yorker* of August 2nd gives cuts of two seedlings sent to the experimental grounds of that journal by the late James Dougall, of Windsor, in the fall of 1883. They are designated Dougall's No. 2 and No. 7. No. 2 is in quality excellent, being sweet, tender and juicy. The color is a pale red on one side and nearly green on the other. It is highly commended for home uses. The No. 7 is more productive and the berries larger, of a dull green color, and not so sweet as No. 2.

The Conn or Autocrat is sustaining its reputation as a green gooseberry of fine size, great productiveness and freedom from mildew.

We have also from Mr. A. M. Smith some samples of that wonderfully productive gooseberry the Pearl, referred to on page 318, Vol. 12. It is a pale red color and its quality very good. But of all the samples sent in to us, not one equals in size and

beauty of appearance Crosby's seedling, a magnificent dark-red variety, described on page 214, Vol. 11.

CARBOLIZED PLASTER FOR THE CURCULIO.

AMONG the numerous remedies proposed to rid our plum trees of the curculio is common land plaster mixed with crude carbolic acid, in proportion of one pint of the liquid to fifty pounds of the mineral. The lumps should all be crushed and thoroughly mixed with the acid, when it will be in a still better condition for throwing over the trees than clear plaster, being a little more damp and a little heavier, and so less affected by the wind. It is Prof. Cook, of the Michigan Agricultural College, who speaks of this in bulletin No. 58. He says Mr. J. N. Stearns, of Kalamazoo, Mich., has used this very successfully for several years in fighting the circulio, though he usually substitutes lime for plaster, which Mr. Cook thinks is not quite so good. The dust is thrown onto the trees as soon as the blossoms fall, and twice afterwards, at intervals of ten or fifteen days. In case of heavy rains, it should be thrown on again soon after the rains wash it off. By use of a step-ladder, it is easily applied. Of course, in seasons of very frequent and severe rains, it would not prove entirely satisfactory.

A WHITE CAP.

MR. THOMAS BEALL, of Lindsay, sends us a sample of a novelty in the shape of a white-cap raspberry. Owing to the condition of the berries, it is impossible for us to give any opinion as to its merits for the table, which, of course, would determine its value. Mr. Beall says:—

"The cap raspberries sent you are, I think, a little more than a mere novelty in color. The flavor is unusually good, and is the sweetest berry I have tasted. It is very prolific. I don't think it would be a more profitable berry than others—for the grower—but possibly some nurseryman may make money out of it. My object in sending it to you was the hope that thereby the public might be in possession of the facts respecting it in advance of speculative advertisements."

HOW TO TREAT A CASE OF POISONING WITH PARIS GREEN.

EVERY person who uses arsenical compounds should not only acquaint himself with the proper methods of treating cases of poisoning, but also keep the antidotes within easy reach. Dr. Wyatt, in *American Analyst*, recommends the following course of treatment for cases of poisoning by any of the componds of arsenic:

"A teaspoonful of mustard flour in warm water. A teaspoonful of dialysed iron mixed with the same quantity of calcined magnesia every five minutes for one hour. Then plenty of oil, or milk, or some mucilaginous tea—say linseed."

YELLOW TRANSPARENT.

A FINE sample of this apple has just been laid on our table, one of the first from some grafts which we set two years ago at Maplehurst. It is all that is claimed for it, measuring eight inches in circumference and being perfectly clear from any kind of blemish. Such an apple ripening now (Aug. 2nd) would sell well on our markets.

STATION GARDENS.

IT is creditable to our Canadian railways that so much is being done in the way of ornamenting the spare ground in the vicinity of the stations, thus not only making the otherwise dull surroundings of the station master pleasant, but also adding to the pleasure of the travelling public, who often have to spend hours in waiting.

More is done in England in this respect than with us, and perhaps we may take a lesson out of their books. Hoping that it may reach the eye of some of the directors of our great Canadian railways, we quote the following from the *Gardeners' Chronicle*, of London, Eng.:

"On some of the South and West England railway lines station gardens are often rendered extremely bright, and two of the companies treat their station masters very liberally in allowing them ground for cultivating. Some take up the ornamental side of gardening and render the stations florally attractive for a goodly portion of the year, others by growing fruit and vegetables secure a welcome addition to their salaries. At Merton Abbey station, on the line from Ludgate Hill to Wimbledon, there is a good example of what can be accomplished in the latter direction. Mr. Young, the station master there, devotes his 40 or 50 rods of ground at the side of the line to strawberries, red and black currants, and gooseberries, with a few vegetables and roses, and by careful attention in his spare time he succeeds in producing remarkably good fruit. Early strawberries in particular on a warm bank are admirably grown, and would compare favorably with the best in the market. Mr. Young is enthusiastic and evidently derives both pleasure and profit from his little garden."

Question Drawer

SUTHERLAND'S SEEDLING GOOSEBERRIES.

73. SIR,—I send you by express to-day a sample of my seedling gooseberry. It is a chance seedling, and as Downing was the only variety grown in the garden where it originated, I presume it to be a straight seedling of that variety. It has fruited four years, bears enormous crops each year, and has never shown the slightest sign of mildew. I have grown Industry and Whitesmith for two years in the same row; both have mildewed. For size and quality the seedling will compare favorably with the largest and best, and as a cropper it will easily distance any gooseberry I have yet seen. The bush is a strong, upright grower; resembles Downing, but stronger. What do you think of the berry?—GEO. SUTHERLAND, *Meaford*.

We consider this a remarkably fine appearing berry. What we want for profit is a gooseberry larger than the Smith or the Downing, measuring between three and four inches in circumference, that is equally productive with these varieties and equally free from mildew. In this berry we appear to have these qualifications. In color it is a light green and in appearance resembles the Whitesmith rather than the Downing.

Mr. Thos. Beall says of this gooseberry:

"The berry is about the size of the Whitesmith and colored almost exactly like it, and the veining is the same, but the berry is much longer. The quality of the fruit is inferior to that of any variety of which I have any knowledge."

A COLD VINERY.

74. SIR,—I have about made up my mind to put up a cold grapery, as the season here is so short. I am thinking of building a wall from the house to the barn, some fifty feet, say ten or twelve feet high, and putting up a lean-to building twelve or fourteen feet wide. But, if I build the wall of brick, I shall require to make calculations for ventilation, or everything will be burned up. I intend to plant apricot and peach trees against the wall. Have you any such building near you, or could you recommend me a place where I am likely to get the desired information, as no one here knows anything about constructing such a building?—A. J. COLLINS, *Listowel, Ont.*

Mr. A. J. Downing, in his work entitled "The Fruits and Fruit Trees of America," gives the following directions for the culture of grapes under glass without artificial heat: "The great superiority of this fruit, when raised under glass, renders a vinery an indispensable feature in every extensive garden. Even without fire heat, grapes may, under our bright sun, be grown admirably; the sudden changes of the weather being guarded against and the warmth and uniformity of the atmosphere surrounding the vines, being secured. Cheap structures of this kind are now very common, and even the Muscat of Alexandria and other sorts which are usually thought to require fire heat ripen regularly and well with moderate attention.

"A vinery of this kind may be erected so as to cost very little, nearly after the following manner: Its length may be thirty feet, its width sixteen feet, height at the front two feet, at the back twelve feet. This part of the structure may all be built of wood, taking for the frame cedar or locust posts, setting them three and a half feet in the ground, the portion rising above the ground being squared to four or five inches. On these posts (which are placed six feet apart) nail on both sides matched and grooved planks, one and a quarter inches thick. The space between these planks, not occupied by the post, fill in with dry tan, which should be well rammed down. The rafters should be fixed, and from three to four feet apart. The sashes forming the roof (which is all the glass that will be necessary) should be stationary, ventilation being given by small windows at the top of the back wall, fitted with hinges, to be opened or shut at pleasure by means of a pulley cord. The building will, of course, front the south, and the door may be at either end.

"The border for the grapes should be made partly on the inside and partly on the outside of the front wall, so that the roots of the vines may extend through the open border. A trellis of wire should be fixed to the rafters

about sixteen inches from the glass on which the vines are to be trained. Early in the spring the vines, which should be two-year old roots, may be planted in the inside border, about a foot from the front wall, one vine below each rafter." Mr. Downing gives further directions with regard to soil, pruning and routine of culture, which, however, are not asked for by our correspondent.

FORMING A FRUIT GROWERS' ASSOCIATION.

75. SIR,—I understand that you have a local Fruit Growers' Stock Co. for the Niagara District, and would be glad if you would send me a copy of your constitution, as we fruit growers in this district find it getting an imperative duty to ourselves to form soon such an association to protect our interests, as we find the fruit store men are in combination against us. One of the fruit store men owned to one of the growers on Saturday last that they had advised their customers not to buy on the market where the fruit was abundant, and that the effect would be that they would break the market or in other words get the fruit at their own prices. We find that there is more fruit grown in the district than is required for a home market, and that a necessity exists for some outlet for our surplus fruit, or fruit growing will be a losing business. Therefore some of the growers have started an agitation for forming some such company as you have for the Niagara district, and I am asked to write to you and ask you for a copy of your constitution, as we might get useful information in it for our guidance in forming ourselves into an association for our mutual protection and profit.—DAVID GREIG, *Cainsville.*

The Niagara District Fruit Growers' Stock Co., whose advertisement appears in this journal, though managed by a local directorate, is not local in its operations. The company is pleased to receive consignments of fruits, from growers in any part of Ontario, to their various agents. Consignors may rely upon receiving their returns promptly and safely. What you require to help the growers in your vicinity is probably something different from this. You want some means of being thoroughly posted as to the best markets to which to consign your fruits. Our Association has in view the preparation of a weekly market bulletin, giving the prices of the fruits in the various markets, hoping in this way to serve the interests of the fruit growers. However, as the fruit crop this season is so short, only a trial issue or two will be undertaken, and if desirable will be more fully worked out another season.

THE JERUSALEM CHERRY.

76. SIR,—Would you kindly inform me in your next issue of the technical name of the house plant known as Jerusalem Cherry, and its proper cultivation, with soil, etc. I have some in my collection, but they are very slow in growth. They make a pretty show in the autumn when the flowers and berries are on amongst other plants —RICHD. H. LIGHT, *No. 2, Garratt St., Kingston.*

Reply by Mr. A. Gilchrist, West Toronto Junction, Ont.

The technical name of Jerusalem Cherry is *Solanum Pseudo-Capsicum.* The same cultivation as chrysanthemums would do for the Jerusalem Cherry. They can be planted out, lifted in the early fall, kept well watered and shaded for a few days. Soil that would grow chrysanthemums will do for them very well. Potato, tomato and the wild bittersweet belong to the same family.

WORK ON LANDSCAPE GARDENING.

77. SIR,—Can you give me the title and publisher's price of some good work on landscape gardening, suitable for a man laying out small villa gardens?—L. R. GLOAG, *Halifax, N.S.*

For the principles of landscape gardening, we can recommend nothing better than "Downing's Landscape Gardening," published by the Orange Judd. Co., 751 Broadway, New York. There is also a hand-book of practical landscape gardening, giving a few designs for lots and grounds, called "Elliott's Hand-book of Practical Landscape Gardening," for sale by the same Company, for $1.50.

A WHITE BLACK CURRANT.

78. SIR,—I now mail you a small box containing samples of a white black currant. It is a heavy cropper, of mild pleasant flavor, good size, healthy grower, etc. The color gives it a much nicer appearance for pre-

serving than the ordinary black currant. What do you think of it?—F. W. WILSON, *Chatham, Ont.*

We cannot say whether the light color would suit the fancy of the housewife better than the black or not. Possibly for variety's sake, this sort might be worthy of cultivation, but for ordinary market purposes, we are inclined to give the preference to the ordinary black.

SHORT'S SEEDLING GOOSEBERRIES.

79. SIR,—I send you by this mail sample of seedling gooseberries that I have had bearing for five years and which have never mildewed.—W. S. SHORT, *London, Ont.*

These berries appear to us to have no particular advantage over the Smith and Downing varieties, which are also free from mildew, and which are fully as large, if not larger, in size.

Open Letters

GREGG, MAMMOTH CLUSTER AND HILBORN COMPARED.

SIR,—Re Raspberries:—Black caps; I have this season been enabled to compare the merits of Mammoth Cluster, Gregg and Hilborn. I find but little difference in quality. Gregg was the earliest, and bore a fair crop of berries, but smaller in size than either of the others. Mammoth Cluster: Larger berry and a better crop, but a little later. Hilborn still later, but by far the best yield and the berries still larger than Mammoth Cluster. THOS. BEALL, *Lindsay.*

FRUIT REPORT.

THE prospect of large crops of fruit which the blossoms promised has passed away. Although the cherry crop has been very fair, the black knot has been very bad this season, particularly on the cherry. Apples and pears have also dropped badly, and complaints are also coming in about the plums; but mine have a full crop, and although a few have fallen, still the trees will have all they can stand. There is a large crop of black currants; and red and white are also good; but raspberries are a general failure here, except the wild ones, which are a fair crop. —A. J. COLLINS, *Listowel.*

SIR,—The HORTICULTURIST for August is just received, and I am much pleased to see that you have given such prominence to the obituary of Mr. Croil. He was an intimate friend of mine, and I miss him very much, as I have good reason to know his good qualities. I attended the funeral, and a most impressive and sad one it was, for I could see how universally he was respected. Only a few days before his death I received a letter from him, written at nine o'clock at night, telling me what a busy day he had had, that he had risen at 3.30 in the morning, but that the "wee birdies" were ahead of him, and singing away for dear life. Surely he died in harness, for he was hurrying with his garden work, so that he could get away to the Association meeting, as he had made all arrangements to go away on the morning of his funeral.

I have to request a favor of you, and it is this, Will you please send me an extra copy of the HORTICULTURIST for August, as I want to send it to the States to a well-known horticulturist, Mr. Crawford. Mr. Croil and I were both trying some new strawberries of his, and we were also experimenting with fertilizers and on this subject he was about to contribute an article to the HORTICULTURIST.

We shall all miss his racy and humorous pen.—W. S. TURNER, *Cornwall, Ont.*

FRUIT NOTES FROM MIDDLESEX CO.

SIR,—Extremes often follow each other. We had a very wet May and June; then followed with dry weather until the surface of the ground was cracked open in every direction, and now we are having a very catching spell of harvest weather. In this township (East Williams) we are having a crop fully up to the average, with but little cause for grumbling. Fruit in this township will not be found going to waste in the least Strawberries were below the average yield; some patches being so badly injured last winter that they would not pay for the trouble of planting them; other small fruits stood about an average; cherries were not as plentiful as last year, while plums and pears will be scarce.

Apples will also be very scarce, and packers will not be kept busy with this season's crop for many weeks, although some of them maintain that apples are an "abundant" crop, so as to be able to buy cheap.

In the vegetable garden we find things doing fairly well, and I think that the yield will be much ahead of last year. Potatoes will be more abundant. I planted some of the Dwarf Champion tomatoes, and like them far better than any of the other kinds, for they do not straggle every way, but stand erect like a little bush, and are loaded with fruit.

I had some seedling gooseberries that fruited this year for the first time, and will be worth while taking some trouble with, for they were a good size and very abundant yielders.

My white Perpetual Moss Rose, that used to give a variety of different colored flowers, changed off and gave nothing but pure white flowers; but a peony plant has taken up the work of three different colors, viz., white, white and pink (half and half), and pure white all at once on the same branches. —J. M. W., *Fernhill.*

CHOPPED APPLES.

SIR,—Your favor with reference to the trade in chopped apples just at hand, and in response to same would say that we have never had an evaporator connected with our business; consequently are not perhaps so well posted as one might be who was directly in the business of evaporating, but, as we understand it, all apples are chopped and then evaporated the same as other fruits. Of course this quality of stock is sold at low prices comparatively, as it is used for making apple butter, jelly, etc. If you will advise Mr. Fall, possibly we might be able to use his apples, both firsts and seconds, as we use the inferior ones for the juice there is in them. We have men now in Canada buying apples and shipping to us, and could send them to his locality if the prospects were favorable for a deal there.—CURTICE BROTHERS CO., *Rochester, N. Y.*

Our Markets

TORONTO.

The Imperial Produce Co of Toronto, Ltd., and London, England, report under date of August 26th, 1890 :—

Our market to-day was liberally supplied. *Apples*—Duchess and Duchess of Oldenburg, 12 qrt. baskets, and Astrachan, 40 to 60 cts.; do. 25 to 35 cts.; do. bbls., $2.50 to $3.25; sweet and green cooking fruit, bbls., $2.25 to $2.50; do. 12 qrt. baskets, 30 to 50 cts. *Peaches*—Very scarce and sample inferior, $1.75 to $2.00. *Pears*—In good demand, Bartlett, second quality, 12 qrt. basket, 65 to 70 cts.; do. choice, $1.00 to $1.25; Clapp's Favorite, 60 to 80 cts.; Flemish Beauties, 50 to 75 cts.; Bell, 40 to 60 cts. *Plums*—Common, 80 cts. to $1.00; Greengages and Lombards, $1.00 to $1.25. *Blacberries*, per qrt., 8 to 9 cts. *Huckleberries*, per qt., 9 to 10 cts. *Tomatoes*, per basket, 30 to 50 cts. *Grapes*—Concord per lb., 10 to 11 cts. *Musk Melons*, Canadian per bbl., $4 00 to $5.00. *Water Melons*, per 100, $20,00 to $30.00. *Bananas*, per bunch, $1.00 to $1.50. *Potatoes*, in better demand at 65 to 75 cts. per bush. *Onions*, in fair demand at $1.00 per bush. NOTE.—Peaches being scarce and dear, plums will sell freely. Apples and pears will bring good prices, both here and in Great Britain. We are experimenting with small packages, and have made arrangements for re-packing, so that slack packed and damaged goods will be made the best of.

Mr. J. W. Brownlow, agent N.D.F.G. Stock Co., reports as follows :—

Lawton's, per box, 10 to 11 cts. *Pears*—Common, per basket, 40 to 50 cts.; Bartletts, per basket, 90 cts. to $1.00; do. per bbl., $7.00 to $8.00; Clapp's Favorite, per basket, 75 to 90 cts.; do. per bbl., $6.00 to $7.00; Flemish Beauty, per basket, 75 to 90 cts.; do. per bbl., $6.00 to $7.00. *Peaches*—Common, per basket, $1.50 to $1.75; Crawford, early, per basket, $1.75 to $2.00; Crawford, late, none. *Plums*—Common Blue, per basket, 75 to 90 cts.; Greengages, per basket, 90 cts. to $1.00; choice varieties, per basket, $1.00 to $1.25. *Grapes*—Champions, per lb., 9½ to 10 cts. *Apples*—Common, per basket, 30 to 40 cts.; Fancy, per basket, 50 to 60 cts. *Tomatoes*—Common, per basket, 30 to 40 cts.; Acme, per basket, 35 to 45 cts. *Cantaloupes*, per bbl., $4.00 to $4.50.

MONTREAL.

Messrs. Vipond, McBride & Co., report as follows :—

Pears—Bartletts, per basket, $1.00 to $1.25; do. per bbl., $7.50 to $9.00; Clapp's, per

basket, 75 cts to $1.00; other kinds, per basket, 50 to 75 cts. Peaches, per basket, $1.75 to $2.00. Grapes, per lb. 10 cts., Plums, per basket, $1.00 to $1.25. Apples, Duchess, per bbl., $3.00 to $3.50; Astrachans, per bbl., $2.50 to $3.00.

Mr. Joseph Brown, agent N.D.F.G. Stock Co., reports :—

Blueberries, 80 cts. box, average 4 gals.; Blackberries, per qt. 10 to 12 cts.; Peaches, per basket, $1.50 to $2.00; Plums, per basket, $1.40 to $2.00; Pears, per basket, 40 cts., to $1.00; Bartletts, per bbl., $10.00 to $12.00; Apples, per peck, 30 to 50 cts., do. per bbl., $3.00 to $4.00; Grapes, Champion, per lb., 8 to 9 cts.; Tomatoes, per 3-peck basket, 40 to 60 cts.; Potatoes, per 90 lbs., 50 to 60 cts.; Cucumbers, per bbl., 50 cts.; Green Corn, per doz., average 6 cts.; Cabbage each, average 15 cts.; Melons, per doz ,$3.00 to $6.00; Onions, per doz. bunches, 18 cts.; Celery, per doz. bunches, 25 cts.; Cauliflower, per doz., $2.50 to $3.50.

OTTAWA.

Mr. S. E. de la Ronde, agent N.D.F.G. Co., reports :—

Peaches, per basket, $1.75 to $1.90; Bartlett pears, per basket, $1.40 to $1.50; Clapp's, per basket, $1.25 to $1.40; Sugar and other small pears, per basket, 60 cts.; Greengages, per basket, $1.40 to $1.50; Blue Plums, per basket, $1.15 to $1.25; Apples, red, per basket, 60 to 75 cts., do per barrel, $3.50 to $4.00; Tomatoes, per bushel, 90 cts. to $1.00; Potatoes, per bag 90 lbs., 40 to 50 cts.

BROCKVILLE.

Mr. J. L. Upham reports :—

Apples, per basket, 40 to 60 cts.; do. per barrel. $3.00 to $3.50; Plums, in baskets, $1.25 to $1.75; Pears, per basket, small, 75 cts., medium, 90 cts., good, $1.25; Peaches would sell for about $2.00 per basket, none here; Grapes, no Canadian; Concords (imported), per lb., 12½ cts.; Tomatoes, per lb., 3 cts.

We do not advise shippers to send early apples here, as the market is now full of local apples. Have too many small and inferior pears and not enough choice eating pears, as is shown by the fact that the California Bartletts continue to sell at 60 cents per dozen. Champion grapes and like varieties never in demand here.

KINGSTON.

Mr. B. Hare, agent N.D.F.G. Stock Co., reports:

Peaches, per basket, $1.60 to $1.75; Pears, Bartletts, per basket, 90 cts. to $1.25; Plums, Gages, per basket, $1.25, Blue, $1.00; Grapes, none in; Apples, per basket, 25 to 30 cts., do per barrel, $2.50 to $3.00; Tomatoes, per basket, 30 to 40 cts.; Cabbages, per dozen, 50 to 60 cts.; Potatoes, per bag, 75 to 80 cts.

GUELPH.

Messrs. H. Walker & Son report :—

Peaches, none in market; Pears, Bartletts per basket, $1.00, and other varieties, per basket, 50 to 75 cts.; Apples, Astrachan per basket, 35 to 45 cts.; do. Strawberry, per basket, 40 to 50 cts., do. Duchess, per basket, 30 cts.; Plums, Blue, per basket, 90 cts. to $1.00; Lombards. per basket, $1.00; Greengages, per basket, $1.00; Nutmeg Melons, each, 5 to 10 cts; Water Melons, American, each, 25 cts.; Huckleberries, per 15-lb. basket, 85 cts.; Grapes, American, per lb., 11 cts.; Tomatoes, Acme, per bushel, 75 cts.; Cabbage, per dozen, 25 to 50 cts.; Cauliflowers, per dozen, $1.00; Celery, per dozen head, 50 cts.; Potatoes, per bushel, 50 cts.

The local gardeners supply cabbage, celery, potatoes, beets, carrots, etc. No tomatoes or cauliflowers raised here.

BRITISH FRUIT MARKET.

The Imperial Produce Co., Toronto, writes:—

We have every facility to handle fruit in London, England, to the best possible advantage and are in touch with the leading British markets.

Our London sale room is in the heart of the fruit business. Any goods arriving off condition will be carefully re-packed and made the best of.

We are entrusted with several consignments of Duchess apples and Bartlett pears, which we are carefully packing in cases for London. These are going forward to test the market, and the result will be made known through your columns in due course. Our English office will only handle Canadian fruit.

The Ontario Fruit Crop

FULL REPORTS FROM VARIOUS SECTIONS.

FROM the following reports sent in by prominent fruit growers in various sections, a very fair estimate of the state of the fruit crop in Ontario may be made. As may be seen from our market reports, prices for fruit, especially for apples, rule unusually high already, and since the crop is so short, not only in Ontario, but also all through the United States and in Europe, an apple famine may be expected during the coming winter.

WELLINGTON.

MR. JAMES GOLDIE, of Guelph, writes: The crop of apples in this vicinity will be much below an average; most of the trees have suffered from the prevailing blight or fungus on the leaves, and the fruit in most cases is badly spotted. Some varieties will have fair crops, but there will be few apples fit for shipment from this district. The trees, where in grass, have suffered much from the excessive heat and drought, and the fruit in consequence will be small.

Duchess of Oldenburg.—In nearly all cases this variety has usual has proved to be one of the most reliable croppers. The trees are well loaded with nice bright fruit.

Golden Russet, Maiden's Blush, King and Alexander are in most cases giving a moderate crop, but generally the fruit will be small. Maiden's Blush seems to be one of the best varieties here. Pears generally will be about an average crop; not many grown and, as far as I know, no large orchards of them.

Plums suffered so much from Black Knot a few years ago that not many trees were left. This disease has not been so severe of late, and what trees remain are well loaded; nearly all varieties are up to an average.

Grapes are not much grown here; very few kinds ripen their fruit, but what are grown show fairly well.

WATERLOO.

MR. SIMON ROY, of Berlin, writes: In reply to your enquiries on postal card of 11th inst., I beg to submit the following answers, viz:—

In *Apples* the crop here is much below the average, and if it were not for the Russian varieties, which have yielded to their fullest capacity, apples would be a rare delicacy.

The Duchess is full, and so are the following Russians, viz:—Tetofski, Red Astrachan, Alexander, Yellow Transparent, Duke Constantine; other varieties as follows;—Blenheim Orange, two-fifths crop; Baldwin, two-fifths crop; Keswick Codlin, one-half crop; American Golden Russet, two-thirds crop; Maiden's Blush, full crop; Haas (looks like Russian variety), one-half crop; Northern Spy, one-third crop.

The above are all the varieties of any consequence in a collection of some forty. The remnant varieties not named have only a few on each tree.

Pears.—Barlett, full crop; Seckel, full crop; Louise Bonne, one-half crop. Out of a collection of some twenty varieties, those stated are the only ones that are worthy of notice.

Plums.—All varieties in cultivation in this neighborhood, with exception of the wild varieties, are all well laden. My collection includes some fifteen varieties, some of which are my own seedlings.

HALTON.

MR. G. E. FISHER, of Freeman, writes: I have taken time to make considerable enquiry respecting the questions asked on your card, with the following result:—

Young trees have generally much less fruit than old trees. Spy, 50 per cent. fair size; Greening, 25 per cent. fair size; Russet, 25 per cent. small; Cranberry, 50 per cent. good; Talman Sweet, 50 per cent. small; Ribston, 25 per cent. good; Snow, plenty of fruit, small, scabby; Barlett, 75 per cent. not first-class; F. Beauty, 25 per cent. scabby; B. Lucrative, 75 per cent. fair; L. Bonne, 50 per cent. fair; Duchess, 25 per cent. good; Anjou, 75 per cent. good; Bradshaw, 75 per cent. good; Lombard, 75 per cent. good; S. Orleans, 25 per cent. good; Yellow Egg, 50 per cent. good; Duanes Purple, 25 per cent. good; Imp. Gage, 25 per cent. good. All varieties of grapes heavily loaded and doing well.

LINCOLN.

MR. E. MORDEN, of Niagara Falls South, writes:

Apples.—D. of Oldenburg and Spy bears some crop; as a whole less than one per cent.; poor condition.

Pears.—Bartletts, full crop; F. Beauty, fifty per cent.; Seckel, seventy-five per cent.; B. d' Anjou, seventy-five per cent.; others hereabouts fair crop; in poor condition; fruit has made scarcely any growth for several weeks; blight active.

Plums.—An enormous crop, say two hundred per cent. of all kinds; Some rot among all varieties; with five weeks drought, a shower and another drought at this time. Plums look well but are, of course, not large.

Grapes.—A great crop of all varieties; two hundred per cent.; varieties of the Roger's stamp are mostly mildewed. Have several times used spray of copper sulphate (alone) with apparently little effect; used on plums for rot with not much result; early and repeated applications may be effectual; many bunches of grapes are small; rose bugs were active, but they left a large crop; Champion is immense in all respects except quality, if allowed to fully ripen it would not so much harm the market.

Quinces.—No crop here; trees blighting badly; I arrest it by cutting off the twigs promptly.

Peaches.—Peaches are a good average crop; crop just here and in a few localities. They are a failure in many places near us. Pears and plums are, I think, a better crop with us than in most localities. On a recent trip to Rochester I noticed many thousands of apple trees but no apples to speak of, very many large orchards are entirely destitute of fruit.

GREY.

MR. R. MCKNIGHT, of Owen Sound, writes:

Apples.—The crop is a thin one; about twenty-five per cent. of a full average; fall varieties best fruited; Astracans a full crop; early harvest half a crop; Gravensteins half a crop; Maiden's Blush fairly well loaded. The crop of winter apples is very thin; Baldwins almost a failure; Spies irregular; some trees well laden, others with little or none on; R. I. Greenings almost a complete failure; Codlin Moth has played havoc with most of the fruit.

Pears.—Will yield an average crop.

Plums.—None in this neighborhood.

Grapes.—Have not fully recovered from the severe freezing the vines got two years ago; good wood is bearing well.

The fruit crop as a whole will be unusually light.

SIMCOE.

MR. GEO. OTTAWAY, of Barrie, writes: Very few apples, especially of winter varieties; a fairly good crop of Duchess, Astrachans and Tetofski; Snows and Russets half a crop; plums an entire failure; grapes a good crop.

ESSEX.

MR. N J. CLINTON, writes: I do not think we will have more than twenty-five per cent. of a full crop of apples. The Spy and Wagner are well loaded; the pears average about forty per cent. of a full crop and is in fair condition, except Flemish Beauty which is badly spotted.

Grapes.—Although last on the list it is not by any means the least important, for next to apples there are more acres of land planted to grapes in this county than any other variety of fruit raised in this county. The Concords, ninety per cent. crop; the Niagara, eighty per cent. crop. the Worden, eighty per cent; the Delaware, sixty per cent. Ives Seedling few planted, good crop were grown; Courtland bearing well. The Concords represent about eighty per cent. of all the grapes grown in the county, hence the grapes are almost a full crop.

LENNOX.

MR. JOHN GIBBARD, of Napanee, writes:

Apples are almost a total failure in this part, with the exception of the following: Duchess a fair crop; Red Astracan, fair; Russets next, but not quite as good, quality fair, but not large. The drouth has been very severe with us here this summer.

Pears.—Not over half crop, Bartlett and Flemish Beauty and Clapps Favorite about equal, affected a little by the black spot.

Plums are but little grown here; Lombard, fair crop and in good condition, also Yellow Egg, fair crop; my Seedling fair crop.

Grapes are not over half a crop; few are raised here.

MIDDLESEX.

MR. JOHN LITTLE, Granton, writes:

The apple crop this year again is in this section a very poor one, not one-quarter of a full crop.

Northern Spy, Baldwin and the Snow apple are the only varieties giving any fruit, and that is on the south-west side of the trees.

Pears.—None in this neighborhood.

Plums.—Pond's Seedling and Lombard a fair crop.

Grapes.—Concord and Worden are the only varieties grown here. Those that escaped the withering blast in the spring have a fair crop.

BRUCE.

MR. J. H. WISMER, of Port Elgin, writes:

Apples.—The varieties of apples, of which a full crop is now assured, is confined to the Duchess of Oldenburg, Spy, Golden Russet and Snow, (the latter much spotted). Many

other kinds promised well in June, but the young fruit has since blighted and dropped to such an extent that although in some favored localities fall and summer apples will be good, yet I think forty per cent. of a full crop is not too low an estimate, taking the whole of this section into consideration.

Pears.—Mostly Flemish Beauty are here grown, and where not affected with leaf blight, will be an average crop. This disease has been noticeably prevalent this season.

Plums.—The yield will be comparatively nothing, but this deficiency will be largely made up in grapes. Every vine old enough to bear, irrespective of variety, is heavily loaded, and if fall frosts are delayed the harvest will be very abundant.

VICTORIA.

MR. H. GLENDINNING, of Manilla, writes: The fruit crop in this section of the country is very light, especially apples, which had a fine appearance in the early part of the season. After the apples had nicely formed, the trees were attacked with a blight, the leaves being full of brown spots, which caused the fruit to fall off. The only varieties that are bearing a full crop this year are the Duchess of Oldenburg, Tetofski. Primate and Keswick Codlin, of good quality, the Famuse has about one-third crop of very inferior quality, being badly spotted and ill-shaped, the Maiden's Blush, Alexander and Wealthy a light crop of fair quality if they had not been affected with the Codlin Moth. The only winter varieties that are bearing are the Northern Spy fairly good, Ben Davis medium, Pewaukee a light crop of inferior fruit and Wagner a few scrubs unworthy the name of fruit. The trees as a rule have not a thrifty appearance since they were attacked with the blight.

The only pear that has succeeded in this section, where the trees are old enough to permit of an opinion being formed as to its hardiness, is the Flemish Beauty, which is doing very well with an average crop of good quality.

Plums are a light crop, the varieties giving the best results this year are McLaughlin, Lombard, Pond's Seedling and Moores Arctic.

Grapes are looking well and if the weather is favorable in the fall for ripening, there will be a good crop of fine grapes. Amongst those that are doing best, I may mention Worden, Champion, Concord, Brighton, Lindley, Niagara, Salem, Agawam, Prentiss, Massasoit and Vergennes.

NORFOLK.

MR. I. K. MCMICHAEL, of Waterford, writes:

Apples.—Duchess of Oldenburg, heavy crop of fine fruit and free from spot. Northern Spy less than half a crop and badly damaged with spots. R. Greening and Baldwin very few and poor sample.

Pears.—About an average crop; in some localities badly damaged with fungus, and in others quite free from it. The fire blight has made serious havoc with many of the pear trees in this district this season.

Plums are an abundant crop, especially the Lombards.

Grapes a fine crop, but not extensively grown.

FRONTENAC.

MR. D. NICOL, of Cataraqui, writes:

Apples in Frontenac County—Red Astrachan, 75 per cent. of full crop; Duchess, 75 per cent. of full crop; Maiden's Blush, 75 per cent. of full crop; Brockville Beauty, 75 per cent. of full crop; Alexander, 50 per cent. of full crop; Twenty Ounce, 50 per cent. of full crop; Fameuse, or Snow, full crop; Golden Russet, 75 per cent. of full crop; La Rue, 50 per cent. of full crop; Red Canada, 50 per cent. of full crop; Seek-No-Further, 50 per cent. of full crop; Pomme Grise, 50 per cent. of full crop.

PRESCOTT.

MR. GEO. S. WASON, of Hawkesbury writes:

The *Apple* crop here is very abundant and in excellent condition, notwithstanding the damage done to the trees by a few short sharp severe wind storms in the month of July. The leading varieties which are a success with us are the Duchess, Wealthy, St. Lawrence and Fameuse, and I might add the Yellow Transparent, as I think it has come to stay.

Pear growing is not attempted here, and plums do not seem to succeed.

Grapes.—An inferior crop.

WENTWORTH.

MR. M. PETTIT, of Winona, writes: The varieties of *Apples* bearing fruit this season are Red Astrachan, Duchess, Golden Russet, Spy. On these there is about one-half a crop, but, as a whole, there is not one-eighth of a crop. Of *pears* there is a good crop of Bartlett and Louise. Of *plums* about half a crop except on Gen. Hand, Lombard, Yellow Egg, Washington, Smith's Orleans, which have a good crop.

Grapes.—The Red Rogers and Niagaras never promised better. All other varieties good. Concords in old vineyards below an average crop.

Grapes on the whole more than a full crop. Condition good. The Delaware and other thin-leaved varieties have suffered less from the thrip this summer than for many years.



Mr. Charles Arnold, Paris, Ont.

THE

Canadian Horticulturist.

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AUTUMN.

(FOR THE CANADIAN HORTICULTURIST).

MATERNAL Flora sinks to rest,
Nature puts on its sombre best,
And Time, with his relentless power,
Is changing every tree and flower.

Each flower, each creature hath its day
In which to flourish and decay ;
So 'tis decreed, that all below
Is only made to come and go.

We sadly mourn sweet human flowers,
Transplanted in Eternal bowers ;
But, tho' by grief our hearts are riven,
Lost friends are stepping stones to Heaven.

Although no joy their voices give,
We know they in their vigor live
And watch us with unslumbering eyes,
And wait to bear us to the skies,

Where changing seasons never come
To wither the eternal bloom,
Nor Autumn's ruddy footsteps stray
To the land of Immortality!

GRANDMA GOWAN.

SOME PROMINENT CANADIAN HORTICULTURISTS—XII.

MR. CHARLES ARNOLD, PARIS, ONT.

SOME of our readers may be disappointed with another photogravure as a frontispiece instead of a colored plate, but those members of our Association who were with us between the years of 1859 and 1883, will, we feel assured, highly appreciate a photogravure of so prominent a Canadian Horticulturist as the late Charles Arnold. Our aim in these sketches is not to write obituaries of the dead, or eulogies of the living, but simply to give due honor to those who have served their fellow countrymen by advancing the interests of that department of industry which it is our object to foster.

A native of Bedfordshire, England, where he was born in the year 1818, Mr. Arnold removed to Paris, Ontario, in 1833, and twenty years after established the Paris Nurseries. Always busy in the interests of scientific horticulture, he was chosen a director of the Ontario Fruit Growers' Association at its very commencement, a position he held to the day of his death. He was an enthusiastic Hybridist, as the many varieties of grapes, apples, raspberries, etc., originated by him, bear witness. In 1872 he obtained a gold medal at the Hamilton Fair, for a new and valuable variety of white wheat; but the most fortunate of his productions in this direction was the American Wonder Pea, for which he received from Messrs. Bliss & Sons, of New York, the handsome sum of $2,000.

The last meeting of our Association, at which Mr. Arnold was present, was in January, 1883, and he was accompanied by Mrs. Arnold. It was on this occasion that he read to us a poem of his own, entitled "A Seat on the Hill-top beneath the old Tree," of which the second stanza runs thus:

How can I but love thee, thou sacred spot?
And think of the loved ones who were, but are not,
When I view thine old trunk draped o'er with the vine,
The Wood-vine and Pipe-vine thy branches entwine;
And could but those dear ones who planted them there
Sit again by my side these blessings to share;
There's nought in this wide world I'd barter for thee,
My seat on the hill top beneath the old tree.

At the summer meeting following, it was our sad duty to pass a resolution regretting his loss, as that of one who "during his long life labored with great industry to advance the interests of fruit culture in this country, and by his efforts to improve our fruits and grains by cross fertilization, and has, while benefiting his own province, gained a world-wide reputation."

The following valuable notes on Mr. Arnold's labors as a horticulturist, have been contributed by D. W. Beadle, who as Secretary of the Association, had full cognisance of all his work in this direction :

Mr. Charles Arnold was, I believe, the pioneer in experimenting in the line of cross-fertilization, with the view of producing new varieties of fruits in Canada. His first attempts, so far as is known, were made with the grape. In his first experiments he took for the mother plant a wild vine of, if I mistake not, the Aestivaltis family, and impregnated the flowers with pollen of the Vinifera tribe. From the seed thus produced he raised a number of seedlings, some of which seemed to be well worthy of cultivation, which he named Othello, Cornucopia, Autuchon, Brant and Canada. These are fully described in the Bushberg Catalogue of 1883, from which we learn that they were much esteemed in many parts of France. However, they do not seem to have been well adapted to the climate of America, being too subject to milldew and rot. The Raspberry received attention from Mr. Arnold, and he raised quite a number of crosses between the Antwerp tribe and a White Cap. None of these proved to be of permanent value, exhibiting often a great tendency to sport back to the original Antwerp. His crosses of the Apple has been of more value to us, and one of them, the Ontario, is being grown successfully in many parts of this Province.

Mr. Arnold gave also considerable attention to cross-breeding of wheat, and produced several varieties of that Cereal. Whether any of these have proved to be of special value, I am not informed. His greatest success was in the production of cross-bred Peas. By crossing the Champion of England with Tom Thumb, he produced a Pea having the rich flavor of the Champion of England, and the dwarf habit of the Tom Thumb. This Pea has been widely disseminated as the American Wonder, and is yet to be found in some of the seed catalogues.

The above is a brief account of Mr. Arnold's labors in cross-fertilization. He led the way, others have followed ; among them Mr. W. H. Mills, of Hamilton, who died the other day, and Wm. Saunders, now Director of the Experiment Station near Ottawa. Mr. Mills confined his labors to the Grape ; but Mr. Saunders took in the whole field of fruits in his experiments.

Mr. Arnold thought several of his cross-bred Apples worthy of a name, among them was Arnold's Beauty, Ella, Dora, and already mentioned, Ontario.

THE GRIMSBY FRUIT SECTION.

IT was my privilege to spend a few days this season in the Grimsby fruit section. Having received an invitation from Mr. Murray Pettit, of Winona, to spend a day or two at his home—the Mountain Valley Orchard Farm—I accepted his proffered kindness and availed myself of a privilege which I had long desired—to see the orchards and vineyards of this far-famed "Edenic" section of Ontario. To an enthusiast in horticulture,

and one who delights in nature in her mysterious formations and her modest yet charming landscapes, I know of no section that will afford him a greater or more varied pleasure than the one of which I write. Just why nature presents to us her wonderful handiwork in

"Rock-bound wall and mountain height,
In silvery lake and meadow vale,"

I cannot tell. But in it all we see a design for man's happiness and comfort. If that design has not accomplished its fullest fruition, if the dweller in the Grimsby Valley be not among the happiest of mortals, it must surely be owing to some fault of his own, or to some condition not a tenet or attribute of the great architectural design.

On the morning after returning from the summer meeting at old Niagara —that birth-place of our Canadian nationality, and the cradle of Canadian patriotism—Mr. Pettit hitched his pony to the phaeton and we started for a drive down the old Grimsby Road to the Methodist Park, a distance of about six miles, calling at several farms and picking up one or two friends by the way. The first stopping place was at the farm of Mr. Geo. W. Cline, whose genial owner joined us in our trip. Mr. Cline's farm comprises one hundred acres, all, except the mountain side, and indeed some of that, in fruit. Though his vineyard is extensive, and his apple and peach orchards by no means insignificant, his specialty is plums, having upwards of 2,000 trees, from full bearing down to only one year after planting. He estimates his crop of plums this year at about 1,500 baskets, and he was about selling the lot on the trees to a fruit syndicate at a remunerative figure. Continuing our trip eastward we passed farm after farm, all more or less covered with orchard, vineyard and berry patch. Many of them, I noticed, were kept in excellent order and scrupulously clean. Among the latter, the model, I think, so far as could be judged from a passing view, belonged to a member of the Woolverton family. Just here I might remark that it was a matter of surprise to one like myself, unaccustomed to that class of farming, how the great majority of the farms we visited or passed by were kept in such good order with so little help. Here in my own county of Perth, where only the old method of mixed farming is pursued, no farmer calculates to work a hundred acres with less than two farm hands; yet I found all these farmers along the Grimsby Road working, as a rule, 100 acres in fruit with but two men. Mr. M. Pettit, with his 175 acres—too much for a fruit farm—kept only two hired hands, and I found his thirty acres of vineyard, eight or nine acres of black berries and forty or fifty acres in apple, pear and peach orchard, surprisingly clean and well-worked with plow or horse hoe. The same might be said of all the farms, to a greater or less degree, in the section, unless it be a few in the hands of unprogressive owners, whose names, I would venture to say, are not among the list of subscribers to THE HORTICULTURIST.

Our next stopping place was at Mr. A. H. Pettit's, whose proprietor also joined our party to the Camp. Mr. A. H. Pettit is among the most energetic farmers of the Grimsby section, and is worthy the prominent position he holds at the head of the Central Farmers' Institute. His farm, more devoted to apples and peaches and general crop than to vineyards, shows that he does not do all his farming—as some prominent figures in the farmers' institutes do—away from his farm. Mr. Pettit having joined us, we soon arrived at Maplehurst Farm, the home of the Secretary of the Ontario Fruit Growers' Association, and editor of THE HORTICULTURIST. Here the road strikes the base of the mountain ridge, which is thickly wooded to the brow, and underneath its shadow nestles Maplehurst, with its old-fashioned frame homestead, overhung with venerable locusts, ever recalling historic memories of U. E. Loyalist early settlement, of courageous enterprise and subsequent thrift. The farm stretches, in apple, peach and pear orchard and vineyard, with intervening raspberry and strawberry patches, away to the lake. From the mountain here, at an elevation of 250 or 300 feet, overlooking the valley toward Lake Ontario, is what Mr. Rice, of Port Huron, described in such graphic terms at the Hamilton meeting as the grandest natural panorama and most inspiring landscape that ever fell beneath the eye of a horticulturist. His enthusiasm was well warranted and his animated description was no exaggeration. As far as the eye can reach to the east and to the west, bounded only on the north by the beautiful waters of the lake, is one continuous and delightful picture of orchard, garden and vineyard, ever varying, yet ever the same, and appearing before and beneath you more like an enchanting miniature checkerboard of nature than what it really is—a rural scene of vast extent. The inspiration of Bryant could do the scene no more than justice in his vivid description of the mountain ridges, rock-ribbed and ancient as the sun; the venerable wood; the vales, stretching in pensive quietness away; the complaining brooks that make the meadows green; and poured beyond all, old ocean's grey and ever changing margin of waters. And this enchanting and fruitful spot is the abode of man. What a happy lot!

Mitchell, Ont. T. H. RACE.

(*To be continued.*)

FRUITS IN MANITOBA.

SIR,—I receive your paper regularly every month, and, to any one having a taste for fruit growing, it is indispensable. The report of the Fruit Growers' Association alone is worth the money. In the spring of 1889 I made choice of the Woolverton * Apple from your list; it arrived all

* The Apple called Woolverton is now known as the Princess Louise. It was given the latter name out of compliment to Her Royal Highness, because of its remarkable beauty.—EDITOR.

right, and last summer it made a fine healthy growth of about twelve inches. I made no report to you then, as I was afraid the winter would be too much for it. I did not protect it in any way, only hilled up the earth about six inches around it, but I was agreeably surprised this spring to find that it had wintered well, and started to grow almost from the terminal bud. Alongside of the Woolverton I had the Duchess and Wealthy, but they proved to be more tender than the Woolverton, dying back to the old wood. The growth of the Woolverton this year is two feet three inches, the Wealthy and Duchess eight and eleven inches. I have great hopes of the Woolverton Apple for Manitoba.

I have successfully fruited the Mammoth Cluster, Hilborn and Gregg black raspberries. I find the latter the most prolific, although the canes are very tender. Of red varieties, I find the Cuthbert the best and hardiest of five different varieties that I have tried. In Blackberries, the Snyder is the best I have found for this Province, all the above varieties have to receive winter protection. I have tried different varieties of red and white currants; the Cherry I have found the best in red, and the Grape in white. In gooseberries, Houghton is the most prolific, although the Downing is a good second, and the fruit is the better of the two. I have the Industry and Whitesmith, but the bushes are too young to judge of their productiveness yet. I have entirely failed with grapes, even with a liberal winter protection; what grows this summer will die next winter; the varities I have tried are Wyoming and Moore's Early.

Would you kindly recommend as worthy of trial in this Province some varieties of grapes, cherries and plums? I have tried strawberries of the Wilson and Crescent varieties, but they utterly failed after two crops.

Nelson, Man. A. P. STEVENSON.

NOTE.—With winter protection, no doubt, you can grow most varieties of grapes; your chief difficulty will be in the ripening. Such early varieties as Moore's Early, Worden, Jessica, and possibly Lindley and Brighton, should ripen before the fall frosts. We shall be glad to hear the results of your experiments. In cherries, unless the Common Kentish, or the Montmorency Ordinaire, will stand your climate, we would advise you trying the Vladimir, Ostheim and the Koslov-Morello, which are the new hardy Russian varieties. In pears, the Idaho, now being introduced by the Idaho Pear Co., Lewiston, Idaho, is worthy of your trial.

PROTECTION FOR THE ORIGINATORS OF NEW PLANTS.

THIS subject has often been discussed in a cursory manner at meetings of our Association, but no definite plan has been adopted which seemed worthy of recommendation for legislative action. It does seem an unfortunate state of affairs that when a new fruit is originated

the man, who perhaps spent years in its production by means of hybridization, or by careful selection of seedlings, and thus has conferred a lasting benefit upon the public, should himself go unrewarded. Sometimes, it is true, as in the case of the Niagara Grape Co., a corporation who has plenty of money under its control is able to control the stock as to make a fortune out of it, but more often it occurs that the person, who is the originator of a new and valuable variety of fruit, goes almost entirely unrewarded for his labors, while others reap unmerited good fortune. For instance, the originator of the Worden grape, a grape which is valued as one of the best for the commercial vineyardist to plant, is said to be now a poor man, having received nothing to speak of from the sale of the grape which bears his name. Of course, if the originator is also a nurseryman, he will find means to make the most of his introduction. But suppose an ordinary fruit grower or farmer throughout our country should succeed in this direction, what reward has he? He will attempt the sale of it to some nurseryman who, naturally enough, will disparage its merits and make the purchase at the very lowest price.

Now, there has lately been a scheme introduced by a joint committee of the California State Horticultural Society and the California State Floral Society, which contemplates the submission of a bill to Congress embodying a system for the National Registration, also a second bill providing for the exclusive propagation and sale rights for a limited time to originators.

The National Plant Register would be a very elaborate, but at the same time a very interesting affair. It would contain: 1st, the number; 2nd, the official name; 3rd, the popular and local names or synonyms; 4th, description; 5th, short history and a statement of the peculiarities and habits of the plant; and 6th, in many cases, if not always, a photograph, drawing, or series of photographs or drawings, of the plant, fruit or flower.

Originators of new varieties of plants who do not wish to secure exclusive sale rights would have the right to offer them for registration with the proposed name, and if they are accepted, the originator would be entitled to a certificate, securing to him the honor or prestige to which he is entitled.

If, on the other hand, he desires to have sale rights for a certain term of years, these would be granted him upon the payment of a certain sum.

Of course, this proposed scheme would involve a great number of difficulties, such as, for instance, the difficulty of carefully distinguishing new from old varieties, owing to the varying characteristics of any particular variety, according to the locality in which it is grown. Many of the obstacles, however, can be overcome in a greater or less degree, and it seems to us very desirable that an attempt should be made to carry out this scheme in Canada, or some modification of it. The subject is worthy of discussion at our meetings, and, if feasible, should be presented by a committee, appointed by the Dominion Horticultural Society, for the consideration of the Dominion Parliament.

APPLICATION OF SULPHATE OF COPPER.

WILL IT PREVENT BOTH LEAF BLIGHT AND CODLING MOTH?

SIR,—I am just in receipt of reply from Prof. Taft upon the above subject. He thinks that the ammonia, if added to the Paris green just before using, would dissolve the arsenic to only a slight extent. He adds, however, that he feels like recommending the following formula for the first two applications, viz.: Dissolve in hot water two pounds of sulphate of copper. In another vessel dissolve two pounds of carbonate of soda. Mix in a tub. After all action has ceased dilute to thirty-two gallons. There would be no danger of dissolving the arsenic by adding this to the Paris green. He believes, however, that the copper solution alone will have sufficient poisoning effect to destroy the codling worm. If that be the case, the Paris green can be omitted altogether. In the last two or three applications he would add the ammonia to the copper and soda as prescribed in the formula given in my paper. (See report, 1890.) He further says that if this copper mixture is applied early enough, and occasionally repeated, it will prevent both mildews of the grape. With reference to the curculio, he says: "From what I have seen of the use of hellebore I consider it fully as effectual" as the arsenic.

St. Catharines, August 30, 1890. D. W. BEADLE.

PACKING AND SELLING FRUIT.

THE first consideration in growing fruit for profit is naturally how to make the most money out of it, so at the commencement I will mention a few things applicable to marketing and selling fruit in general, and then give some information on planting different kinds of fruit trees, the preparation of the soil, packing, etc., in order to prevent needless repetition.

Selling.—In order to effect a ready sale for fruit of any kind in these days of keen competition, it is necessary to grow larger and more highly colored samples than any one else if possible; to strive after quality—as this is understood in the market—more than quantity, although the latter must not by any means be overlooked. And here let it be noted, if the fruit is to be sold privately, good flavor and a proper degree of ripeness will be great recommendations to your customers to come again; but if you intend selling through an agent in the market, flavor will count for nothing, but size, color and soundness of condition are everything towards securing the highest price. All fruit for sale, therefore, should be grown as large and as highly colored as possible, gathered and packed before it be-

comes soft and over-ripe, and should always be honestly graded, that is not putting all the small and deformed fruit at the bottom of the package and a very few fine specimens on the top, but keep each size separate. Next strive to have your fruit in the market when there is not a glut of the same kind there. Very early and late samples always sell the most readily.

Packing.—This requires great care, for no matter how good the sample is, if it is badly packed it may only obtain the lowest price in the market, and months of labor and anxiety will be lost in a few hours. A few general principles will only be mentioned now, further particulars will be found under each kind of fruit. Always pack as carefully for a short journey as for a long one, and always pack firmly—that is, none of the fruit should be able to move in position when fastened down. All movement means damage. On the other hand, no pressure must be applied to soft fruits. All fruits should be gathered only when perfectly dry, not starting to gather them when there is a heavy dew, or immediately after showers. Pack in small parcels to prevent crushing and fermentation. When gathered send to the destination as soon as possible; delay means depreciation of sample. Be very careful that no damaged fruits are sent, as very few of these will soon spoil the good ones if any delay occurs in the transit or sale, and always keep everything perectly clean and dry.—*Journal of Horticulture.*

THE COUNTRY NORTH OF LAKE NIPISSING.

I HAVE just returned from a trip to the north of Lake Nipissing, and spent a little time in looking over the flora of that section. Down the Sturgeon River the basswood grows to a large size; at Sturgeon Falls are a few apples planted which are doing fairly well, especially the crabs where they are planted on drained soil. I have no doubt most of the hardy apples grown in this section will do well there, that is sorts that do not start to grow too freely in the spring. All sorts of wild fruits are abundant there. Sand plums, sand cherries and the amelanchier, with the Saskatoon, make up the principal of those grown on the rocks or dry plains. The raspberries are very fine, but very few blackberries are to be seen.

The wild plum and frost grape are very plentiful on the islands in Lake Nipissing, some of the grapes are said to be of good quality, but I had not time to go to see them.

The wild rose, in several colours and very fragrant, grows here in great profusion and take kindly to garden culture and soon show improvements,

the fruit on them now is very beautiful, taking all shapes from that of our apple to the longest pear. I brought home a dozen or more to test. I put in a good word for the HORTICULTURIST when I could, and have no doubt if I had had a copy I could have got half a dozen subscribers. However, Mr. Michaud, a gentleman coming from the Gulf of the St. Lawrence and an enthusiastic amateur, at once stated that he just wanted such a paper and immediately handed me his dollar, and asked to have the back numbers and report sent at once. I have no doubt he will make a useful member, and give some valuable information regarding the possibility of that section for fruit growing. Sturgeon Falls must be about 100 miles north of Renfrew. Mr. Michaud talks French fluently, and will be able to explain to the settlers there, (most of whom are French,) the possibility of growing fruit in their new homes.

Gravenhurst. J. P. COCKBURN.

MONEY IN THE GARDEN.

I WISH I were able to convince every farmer in this glorious country of the great truth that an acre of vegetable or fruit garden, properly taken care of, will be the most profitable acre on the farm, a fact as undeniable as it is important, and one that will bear the most rigid investigation.

The amount of "green stuff" that can be produced on a single acre, well tilled, in a single summer, is simply incredible, wagon loads upon wagon loads; and there need not be a single meal from early spring until winter that is not made more cheerful, more palatable, more wholesome and altogether more enjoyable by the presence of some good dishes from the garden, not to say anything about the canned tomatoes, peas, berries and the crisp stalks of celery, etc., during the winter months. I and my family live almost exclusively on the product of garden and poultry yard during the entire summer, and we enjoy pretty good health generally. No meat bills to pay, no nausea caused by greasy food, no dyspepsia! Think of sixty meals with big plates of strawberries and sixty more with raspberries and blackberries! Think of the wholesome dishes of asparagus, of the young onions, radishes, the various salads, the green peas and beans, the pickles and cucumbers, the tomatoes, squashes, melons, etc.! And all this practically without expense, at least, without cash outlay. There is plenty of good manure in the barnyard; horses stand in the stable more or less unused during the gardening season and the needed labor can also be had in an emergency. At the same time few farmers will have difficulty to sell, or trade off, the surplus to advantage. The village blacksmith may take part, if not all, of his pay in vegetables. The wagon maker, the carpenter, the storekeeper, the physician, the banker, all of them need vegetables, and often are glad to take what good things you have to offer in exchange for money, goods or services. If the working forces on the farm are insuf-

ficient, it will often be advisable to reduce the area of wheat or oats, and grow an acre of garden stuff instead; for the same work devoted to the garden will pay you 500 per cent. profit above that realized from grain culture.—*From How to Make the Garden Pay.*

RIPENING TOMATOES FOR EARLY MARKET.

IN growing tomatoes for market, the premium is and always has been on earliness more than any other one thing. Whoever succeeds in getting his crop before the customers a week in advance of his competitors is sure of a good price and of good profits, and this even when the fruit is not up to the standard as to size and quality.

This observation is not new, nor confined to this country. The market gardeners about Paris, France, have also found it out some time ago, and, as told in the *Revue Horticole*, often employ artifical means for hastening the maturity of the crop. To do this, the fruit is picked when yet green, but approaching maturity, and spread out upon a layer of straw under the hot-bed sashes. Here they are lightly sprinkled from time to time, to keep the atmosphere moist, and prevent them from shrivelling. During the greatest heat, on bright days, partial shade must be provided, else the tomatoes will be liable to get burned or scalded.

It takes but a few days of such treatment to bring out the bright color of maturity in the fruit, but the latter usually fails to attain to the full rich flavor of the tomato when naturally ripened. The quality of specimens picked in the more advanced stages of ripeness, however, as indicated by even the slightest beginning of coloring, is not perceptibly impaired or altered. Melons may be treated in a similar way for the purpose of hastening their maturity.

Our progressive market gardeners usually rely for their early friut mostly on the selection of such early varieties as King of the Earlies, Earliest Advance, perhaps Dwarf Champion, etc., and on starting the plants very early under glass. It may pay them to try the method here described.—*Popular Gardening.*

PICKING AND MARKETING GRAPES.

"VINTAGE time," as it is still called, is the grape grower's harvest, and is a very important and busy time of the season. It is one thing to grow a good crop of grapes and another to gather and market them properly and to the best advantage.

Some vineyardists, who have not had the kind of experience that begets wisdom, and being actuated by short-sighted cupidity, are tempted, and sometimes do pick and ship fruit to the city markets when it is scarcely

colored, because the first grapes on sale usually bring larger prices. "But," says the best authority, "if you value your reputation and wish to create a lasting and profitable demand for your fruit, you should not market it before it is fully colored, and so ripe as to be sweet and palatable."

The first grapes to color in our region—the Talman, the Hartford Prolific, etc., which are poor even when fully ripe—if placed in the market only half colored, sour and unripe, generally spoil the demand for weeks thereafter. People buy them because they look passably well, try them, pronounce them unfit to eat, which is the truth, and cannot be induced to buy again for some time. Wait, therefore, as a matter of policy, as well as principle, until after your early fruit is fully colored and really ripe and good to eat, and follow this rule implicity with the later varieties also. Then whoever buys of your shipments will buy again, and the whole family will desire more and more as the season advances, and the consumption will be greatly increased and prices maintained. This is a substantial gain; and this is not all, as a ripe crop of grapes will weigh much more than those but half ripened, and there is less shrivel and shrink to them, as they will not (like some other kinds of fruit) ripen after they are picked, and only a day or two after they are gathered they begin to present a sickly appearance.

It may be truthfully asserted that, as a general rule, sour and unripe grapes are the principal causes of gluts in the city markets; and, while the shipping of such fruits may in some unfavorable seasons (like those of 1888 and 1889) be, to some extent, unavoidable, in good seasons, when crops ripen up well and early, there is no excuse for shipping sour grapes at the opening or any time thereafter. With a proper distribution of shipments, and shipping in reasonable amounts, no market glut can long continue if the fruit is of good quality, and none need be feared this year.

Gathering, or picking grapes should always be done when the vines and fruit are dry; and the picking trays containing fruit should not be allowed to remain outside of the packing house, or other shelter after the evening dew begins to preceptibly fall. If the grapes are being picked for table uses too much care cannot be exercised in clipping the clusters and handling them so as not to mar their bloom, and in trimming them for packing (taking out all imperfect berries, etc.) the same constant care is requisite in order that they may go into the boxes or baskets as near perfect as possible and reach the market in the very best condition and order. If they are being gathered for wine, less care may be required, but even then they should not be handled so roughly as to be bruised, for they may have to stand in the trays several days, sometimes, before they can be pressed and are always damaged by rough and careless picking and handling. Usually most of the varieties ripen unevenly, and two pickings are necessary, especially when the picking is for market purposes.

In regard to pickers it may be observed that there is a great difference in the manner of doing the work shown by different persons, men, women,

boys and girls; and girls, as a rule, do better, quicker, and more perfect work than boys; and this is emphatically true also in culling, trimming and packing the fruit. Hence it is that vintage time, on the shores of our grape growing lakes, furnish so much work for young women and girls to do in the open vineyards and packing houses—the same as in France, Spain, Portugal, portions of the German Empire, and other grape producing countries of Europe. Deft, quick, delicate-fingered, and faithful working girls are the extensive grape grower's main reliance in "vintage time," and their timely aid at this busy part of the season is highly appreciated by their employers.

This year, as heretofore, the great bulk of the maturing crop of 1890 will probably be packed in five and ten pound baskets and shipped without crating; but there will be a large amount packed in boxes, ranging from five to ten pounds, and next year the proportion will, no doubt, be much greater still, as the railway rates, which favor crating, will probably be adhered to—having been waived this season, because of insufficient time for the factories to change from baskets to boxes and crates.

In regard to packing grapes in baskets, or boxes, for shipment to the city markets much might be said as to how it should be done; but if anyone wishes to learn more about this very important branch of the grape growing business in thirty minutes than we can teach him in thirty chapters, let him go to the packing house of a well established and successful vineyard, where the process has been studied and improved for years, and see how it is done by experts who have brought the art to a high degree of perfection.

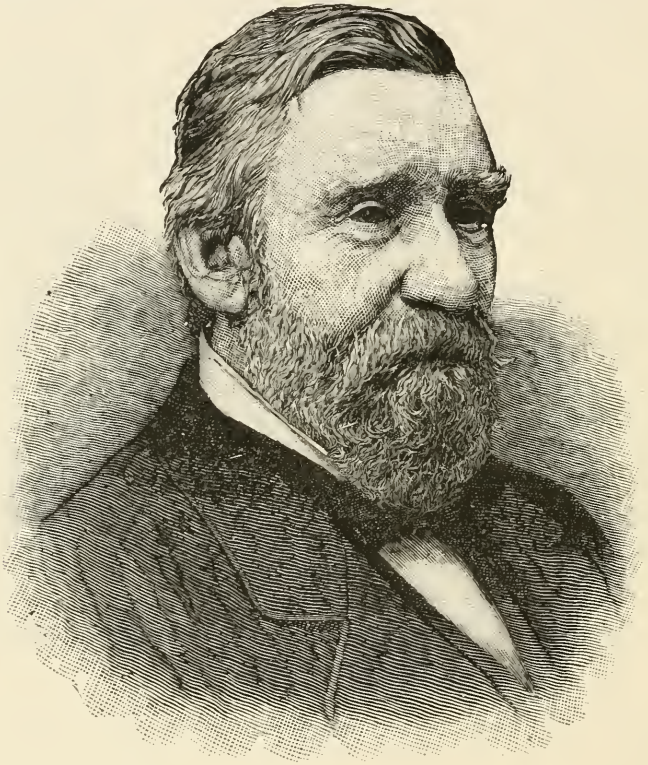
In seasons when grapes are plenty, but inferior, and therefore cheap, (as in 1888) good packing excluded nearly everything except full and fair bunches—the rest all going to the wine press—but we apprehend that, as this year grapes will be a less crop and likely to command much higher prices, packing will include smaller and less perfect clusters, providing their berries are ripe and of good average quality.

It is a well known fact that the great wine cellars of Europe—and the same thing is true of those in Pleasant Valley and on the shores of Keuka—will not buy grapes to be delivered until they are perfectly matured, and if they have vineyards of their own the fruit is not allowed to be gathered until it is dead ripe, as shown by the stems turning brown, and from such grapes they obtain the highest and most perfect wine-making results. Therefore, those small growers who have no wine making facilities of their own, but wish to sell their refuse grapes to wine cellars, should let them stay on the vines until they are fully ripe.

Hoping that, with proper picking and packing, the sending of none but ripe and good fruit to market, and not being in a hurry to rush all to the front as soon as it is fit to ship, the grape growers will gather a rich harvest from the vines this year, we bid them good cheer, and wish them the fulfilment of their highest anticipations.—*Vineyardist.*

PATRICK BARRY.

PATRICK BARRY, one of the most widely known and highly respected citizens of Rochester, expired June 23rd, at eight o'clock a.m., at his residence on Mt. Hope Avenue. He had been ailing for over a year, and the final collapse was due to a complication of causes. His death was painless, and he was surrounded by his family in his last moments.



Patrick Barry

Mr. Barry was the son of a farmer, and was born in Belfast, Ireland, May 24, 1816. He received a liberal education, and at the age of eighteen became a teacher in one of the Irish National schools. He taught for two years and then resolved to make the new world his home. He came to New York in 1836, and in his twentieth year became a clerk in the Linnæan

nurseries of the Princes at Flushing, Long Island. He remained there four years, during which time he devoted his energies to acquiring a complete knowledge of the nursery business. In 1840 he came to this city, and in July of that year founded a partnership with George Ellwanger, which has continued unbroken until to-day. Seven acres of ground was the extent of territory on which the firm of Ellwanger & Barry started the Mount Hope nurseries, now of world-wide fame.

Thomas Meehan, state pomologist of Pennsylvania, in a biographical sketch of his life-long friend, said: "In fruit culture especially, Mr. Barry's services stand pre-eminent. He had long been known as an effective writer through papers in different periodicals, when in 1852 his first great work "*The Fruit Garden*" appeared. This was so popular that another edition was issued in 1855. The greatest work of Mr. Barry, however, is probably the "Catalogue of the American Pomological Society," the preparation of which, as chairman of the committee, has been chiefly his work. This is the great guide for American fruit culturists, and has long been the admiration of the world."

For more than thirty years Mr. Barry had been president of the Western New York Horticultural Society, one of the most useful and flourishing organizations of its kind in the United States. He has been president of the Western New York Agricultural Society, and was a member of the board of control of the New York State Agricultural Experiment Station. Among the positions he has held in the business world were the office of president of the Flour City National Bank, president of the Rochester City and Brighton Railroad Company, president of the Mechanics' Savings Bank, president of the Rochester Gas Company, president of the Powers' Hotel Company.

Mr. Barry was a man who at once commanded respect by reason of his frank, manly countenance and an address in keeping therewith. He was deliberate in speech and yet at no loss for words to express his ideas with clearness and force. Sound sense and correct judgment were the leading characteristics of his mind, and these qualities backed by decision of character gave his opinions weight.—*Florists' Exchange.*

FALL PLANTING.

TREES.

SIR,—There is a good deal of truth in T. H. Race's remarks about fall planting of trees, but it is a hard matter to remedy. There are many reasons why nurserymen work off stock in the fall, and a man can always find plausible arguments to prove his own course to be right. I set very few fruit trees in the fall. When I find it necessary I always shade

the south side. A very good way is to set a good strong stake in the hole before planting the trees, I then set the tree on the north side and close against the stake. This not only protects from the sun but is a support in its future growth.

Prof. Smith, of the Botanic Gardens, at Washington, D.C., says that it is important that all trees should be shaded for a few years after planting, and, to this end, he has a peculiar form of frame that he puts around them. He has the care of all the street and park trees in the City of Washington. No citizen is permitted to plant or trim trees on the street in front of his property in that city.

Port Huron, Mich. S. B. RICE.

BERRY PLANTS.

I SHALL try planting red raspberries and blackberries in October, protecting each hill with a forkful of manure as soon as the ground is frozen enough to drive upon. The raspberries I will plant in check rows, and put three plants in a hill to insure a perfect stand. The matter of having a full row with no vacancies I have twice before alluded to, and now do so again, as no large or extra large yield can be obtained if there are missing hills. An acquaintance, who is a large berry producer, is realizing this to his cost this year. The wet weather delayed him in the spring, and also delayed parties of whom he bought plants, and finally when he did plant in poorly prepared ground, many plants failed to grow. His strawberries have twenty-five per cent. of vacancies, and his blackberries have come to the extent of only thirty per cent., leaving seventy per cent. of the ground unoccupied, to hoe and cultivate not only a year, but for several years to come unless he ploughs it up or fills the vacancies next season. The blackberry failure is not entirely his fault, but the result of a swindle. He sent to a widely advertised firm for Erie plants. Late in the season he received a box containing pieces of roots about five inches long, with a letter stating inability to furnish plants, but taking the liberty to "substitute root cuttings, which would do just as well." Such a swindle should be punished by recourse to law and wide exposure, but in this case the amount is not large and the swindled party not given to litigation, so he will quietly submit, and I suppose the firm will repeat their methods another year.—*Vick's Magazine.*

✳ Flowers ✳

THE WATER LILY.

SIR,—I have been experimenting a little with pond lilies this summer and have found that the little "Nymphæa odorata minor" is very easily domesticated and has given quite satisfactory results. Its little blooms are very fragrant and are perfect in form, about two to two and one-half inches in diameter. The roots are small and well adapted to pail and tub culture.

I fitted up sixty tobacco pails and several tubs or half barrels. The plants have done remarkably well in all, but have bloomed best in the pails, perhaps because I had stronger plants in them, as I arranged them first. Later I have made a small pond in my lawn. The red, blue and yellow lilies have not as yet given any flowering buds. For winter I shall set the pails in the cellar. Tubs set in the lawn will be simply covered where they are.

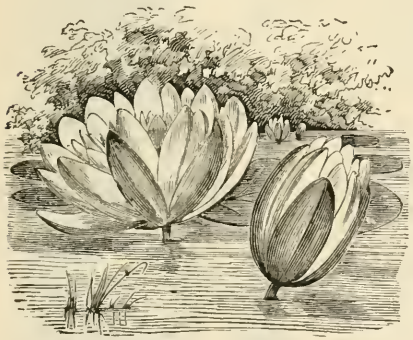


FIG. 65.—THE WATER LILY.

Port Huron, Mich. S. B. RICE.

NOTE.—My plan is to cut an oil cask into two and set the parts in the lawn, three or four inches below the surface of the ground, so that the sod can slope down to it and cover the top edge of the tub. Fill four or five inches of rich earth (I use a mixture of clay soil, more mud top of the clay) and set the plants firmly into it.

I was quite surprised; I made a tank last of July 6x12 feet, 3 feet deep, filled one-third full with earth, set in plants, they continued to grow luxuriantly and are now in bloom, with more buds. They are certainly an easy flower to raise.

THE IRIS.

OF stately growth, rich perfume and an endless variety of color, this kingly flower, half orchid, half lily, has won for itself favoritism wherever grown. In England it is extensively cultivated, and is perhaps one of the most popular of hardy plants, while in our own country every lover of flowers has at least some varieties of this charming plant among his collection.

As a garden plant, it is especially desirable, and years ago we began with the low old-fashioned Iris, or Flowering Flag, with which we bordered our beds, and have it still, its low fragrant blossoms always at hand in the early spring. An older species of Iris, and much more rare at this day, is a peculiar variety called by the older people "Quaker Lady," of silvery hue, richly dappled and veined with bright yellow and deep maroon, its foliage delicate, of a bulbous nature, and blooming exceedingly early in March and April. But it is to the large-flowering and free-blooming varieties we would call attention. Most of them are quite hardy and very easily grown, and can be planted in spring or fall. Planted singly they soon form clumps of their own, with flowers, whose quaint form, richness of color and delicate perfume, defy description.

A pure white variety is equal to the rarest lily, and much more easy of cultivation. Each clump of the Iris will send up many flower stems, and each stem bear several large beautiful flowers, whose delicate texture will be a marvel to the beholder. Dappled, striped, bordered and mottled, with crimped edges and plain; with the richest violets, gray and rose; with some of the newer varieties more veined still, until almost every color shown in flower is to be found among this family.

The German Irises are very fine. Among them Bacchus, a tall-growing variety, white, with the margin veined with purple, and Cherau, of smaller growth, color bronze yellow, with maroon on white ground. Iris Susiana is another variety of great beauty, flowers very large, mottled chocolate and black, veined with the silvery gray.

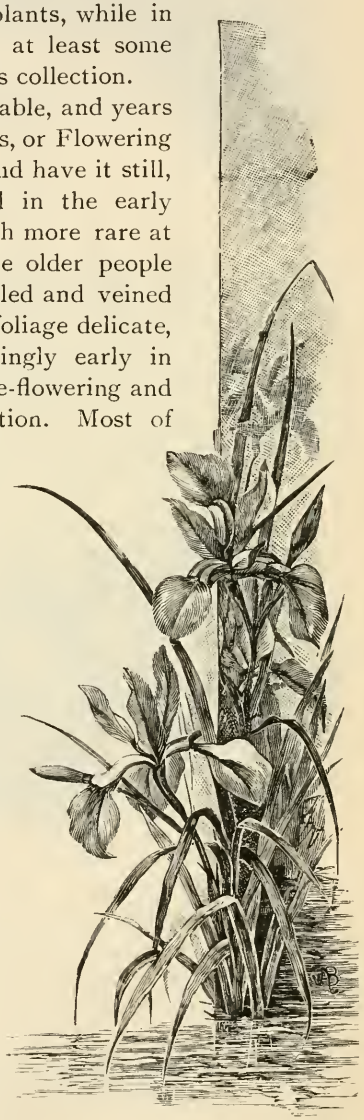


FIG 66.—THE IRIS.

When once planted the Iris will increase in size and beauty every year. The taller varieties can be placed in the background and the low-growing sorts and medium sized in front—a charming picture when in full bloom. They bloom from May until the last of June, and some of the old-fashioned dwarf varieties much earlier. The flowers when cut are fine for house decoration.—*Vick's Magazine.*

New or Little Known Fruits

A LATE STRAWBERRY.—On the 3rd of September, Mr. J. T. Couch, of Davisville, North Toronto, sent us a runner of a strawberry plant which was fruiting, having on it seven berries, which he assures us would ripen, had they not been picked. He says that he has more like it, and that some of the runners bloomed even before they had rooted. This is surely somewhat unusual.

A NECTARINE.—Mr. A. Alexander, of Hamilton, sends a sample of a nectarine, with the following remarks:—

"By this post I send you three fruits from a tree growing in a back yard in Hamilton. It is to all appearances a seedling peach, but as you will observe they have the aroma and the flavor (to some extent) of the English nectarine. It fruited last year for the first time, bearing a large crop, which ripened before the 1st of September. Last year they had not the high color which these had, but looked more like some varieties of green gage plums. I think it an acquisition, if a seedling; if not, do you know it?"

The nectarines certainly have a delicious flavor, and a pretty color, but the size is against them as a market variety. The nectarine is simply a smooth skinned peach, and sports of this kind often occur where a large number of peach seedlings are raised. They can be propagated by budding, and in England some twenty or thirty varieties of nectarines are cultivated.

This one is probably a seedling from a peach pit, planted perhaps accidentally in the place where it is growing.

THE WILLIAM'S STRAWBERRY.—Mr. Alfred Ledger, of Burford, writes to give the true history of this berry. He says that the originator of that berry is Mr. Jonah Williams, of Burford. He found the first plant under a grape vine, and planting them in an open field, he was so pleased with the fruit, that he named them "William's Improved." He has grown them six years, and has taken great care not to mix the plant with others. To show its productiveness, Mr. Ledger states that after the frost of 1889, Mr. Williams picked off one acre and three-quarters, 3,700 quarts.

Mr. Ledger claims, therefore, that Burford and not Cainsville, is the true home of this valuable strawberry.

A SEPTEMBER CHERRY.—A subscriber in Annapolis, N.S., writes:—

SIR,—"I send you to-day a small box containing a sample of fruit which I think may prove of interest to you. It has been named Clarke's September Cherry, and is found growing on one tree at a place called Lower Granville, a few miles from this town. It is said to be the only known late cherry, and when fully ripe the color is a dark purple or red. The tree producing this fruit has been purchased by a firm of nurserymen doing business here, who intend propagating it, I understand. I shall be glad to know what you think of it.—E. D. ARNAUD.

The samples came to hand in good condition, notwithstanding the long distance. The cherry is about the size and shape of the Kentish, and the skin somewhat similar in color. But the flesh is firm, and of a sweet and most agreeable flavor. It would be a capital shipping cherry, for at the time of writing the samples have been kept ten days, and are still in good condition.

TRIOMPHE DE VIENNE PEAR.—This magnificent French pear took the first prize at the Industrial under the section "Any other variety." On p. 261, Vol. XI, of this journal, some of the points of excellence of this pear were mentioned. To-day, September 20th, we are again in receipt of two samples just in eating condition. In general appearance, it somewhat resembles the Bartlett, but it is far larger, more regular in form, and the skin yellow with numerous dots. Would our readers like it placed on the list for distribution?

A SEEDLING APPLE from Malcolm Cameron, Bass Lake, Oro., said to ripen about the end of September, is very good quality. It is below medium size, skin a rich red, and altogether quite an attractive dessert apple for its season. Its chief fault is that in about ten days after ripening it goes to "mush," losing flavor and consistency.

SUTHERLAND'S SEEDLING GOOSEBERRY.—Mr. Sutherland writes, referring to Mr. Bealls' criticism on p. 273, that the sample was too green to judge of quality, and that when fully ripe the quality compares favorably with that of any variety he has seen.



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

THE WILDER EARLY PEAR, Mr. Green, of Rochester, writes us, ripens August 1st, and is nearly equal to that of the Seckel. It will keep two or three weeks after picking.

SOME LARGE PLUMS.—Major Allan, of Grimsby, showed us some very fine samples of Pond's Seedling plum which measured seven and three-quarter inches in circumference one way, and six the other. Major Allan's fruit farm is situated in a choice spot just under the mountain, near Winona, and seems particularly adapted for growing fine plums. Indeed this section of country has lately become noted for its plums, Mr. Cline having an orchard of over two thousand trees, and other growers devoting a greater or less acreage to the same fruit.

TESTED RUSSIAN APPLES.

ACCORDING to an article by Dr. Hoskins in the *American Garden*, there are very many varieties of Russian apples that have been proved to possess positive merit, notwithstanding it is now some thirteen years since the large importation of Russian fruits was made by the National Department of Agriculture of the United States. He mentions first the Oldenburg and Tetofsky, the former of which is everywhere valuable, and the latter only where extreme hardiness is required; and both of these introduced previously to the importation referred to; the Yellow Transparent, an apple of great commercial value, is the only one of this importation which he has thought valuable enough to plant extensively; and of more recent introductions, he names the following as large, handsome and productive kinds, viz.: Titus, Zolotoreff and Switzer.

He adds, "But I am not decided yet to select one of these, rather than the Red Beitigheimer, an apple introduced by Ellwanger & Barry as German, but which proves as iron-clad as the Russians. Antonovka and Longfield promise to be profitable for planting for early winter varieties. The Red and Yellow Anises are both too small for market. The same must be said of Borsdorf, a longer keeper, of good quality. Getting beyond these we need time to arrive at satisfactory conclusions."

FRUIT GROWING IN IRELAND.

A CORRESPONDENT of the English *Journal of Horticulture* has been making a tour of Ireland. He reports that a very small portion of the arable land is brought under cultivation, and much that is cultivated is done in the worst possible manner. In the north of Ireland, flax is one of the great staple crops, one hundred thousand acres in the province of Ulster alone being devoted to it. The great staple crop in the south, and one that is there considered more important than bread among the family supplies, is the potato. He confirms the reports of the newspapers about the general failure of this crop in that country owing to blight, as a result of which thousands of acres look as if they had been burnt, and a dreadful famine stares the inhabitants in the face.

It would appear that the country is well adapted for market gardens and for some lines of fruit growing; and, if any such enterprise as is seen on this side of the water

characterized the people of that country, fortunes might be made in these lines. Apple trees flourish and bear good crops from the extreme north down to Cork, and small fruits may also be grown with success; but whatever is done in the culture and marketing of fruits is done in the most haphazard and careless manner. Nevertheless the occupiers of some orchard land are able to pay as much as $15 an acre rent, and earn a good living; while at the same time land on the same estate, not planted, rents as low as $2 or $3 per acre.

COMPOSITION OF APPLES.

PROF. CLARK, of the Missouri Experiment Station, has been making analyses of apples of various stages of growth, to determine if chemical compositions can afford any reason for the thinning of fruits. A sample of the Ben Davis apple was taken on July 9th, and on October 23rd a large and perfect sample of the same variety, and others at the same date which were small and imperfect. The results show that a large proportion of the mineral matter contained in the fruit is stored up during the early part of its growth, evidencing the importance of thinning fruit as soon as it is of sufficient size to show the wormy and imperfect specimens. A surprising result of the investigation is the fact that the late sample of small and imperfect fruit shows a richer content of plant food than the large and perfect specimens; and from this apparent anomaly, the author concludes that "it costs less to grow a barrel of large and perfect apples than it does to grow a barrel of small and inferior fruits."

FRUIT EXHIBITS AT THE WORLD'S FAIR.

IN pursuance of a call of the Illinois Horticultural Society, a convention of delegates from various American Horticultural Societies met in Chicago on August 27th, to to outline some plans regarding the horticultural exhibits at the approaching World's Fair in that city. In accordance with the suggestion of Mr. VanDeman, of Washington, it was thought best to separate the horticultural exhibit into four departments, viz.: 1, Floriculture; 2, Pomology; 3, Nursery and Forest; 4, Seed and Vegetables. Mr. Parker Earle, of Ocean Springs, Miss., was made General Commissioner of Horticulture; and the four departments were placed under Superintendents as follows: 1, Jas. D. Raynolds, River Side, Ill.; 2, G. B. Brackett, Denmark, O.; 3, Geo. B. Thomas, West Chester, Pa., and 4, J. C. Vaughan, of Chicago.

It was further resolved that any other societies existing in America were entitled to representation on payment of $25 each.

It is worthy of consideration whether the Ontario Fruit Growers' Association should not be represented, and more especially whether we should not make a creditable display of Ontario's horticultural products at so important an Exposition.

THE CULTIVATION OF THE CHESTNUT.

AT the late meeting of the American Association of Nurserymen held in New York city, a paper was read by Mr. S. C. Moon on this subject. After referring to chestnut culture in orchards as being profitable, he says: "No trees, which are equally well adapted for avenues, will yield any return like our native nut-bearing trees, and none are more appropriate for shade and ornament about buildings, or along farm lanes, or in pasture fields. In planting the Chestnut, whether in orchards or avenues, the trees should be set at least forty feet apart, and some varieties will need forty-five or fifty feet. Like fruit trees they should be mulched, or the land should be kept mellow about them while they are small, and they will come into bearing as soon as apple trees or pear trees. Wild trees usually commence bearing when from twelve to twenty years old, and grafted ones, of the most productive varieties, from two to seven years after grafting. A Chestnut orchard of the Numbo or Paragon varieties will come into bearing condition as soon as an orchard of Baldwin apples. Both of these varieties possess the qualities which make any orchard fruit profitable, that is, hardiness of the tree and early fruitfulness, with large size and fine appearance of fruit."

Question Drawer

RASPBERRIES FOR MARKET.

80. SIR,—What are the best kinds of raspberries and black caps for market?—GEO. SAVAGE *Burnhamthorpe, Ont.*

With us at Grimsby, the Cuthbert is the most profitable red raspberry in suitable soil, but possibly in the county of Peel it might not be sufficiently hardy. The Turner

is an excellent berry and very productive; it has the advantage of being hardier than the Cuthbert, but it is too soft to be a good shipper. The Brandywine is one of the best in this latter particular, being a very firm berry, good color and very productive. In quality, however, it is inferior.

The Shaffer is on the border land between the red and the black varieties. It is well worthy of your testing. We find it very productive and unsurpassed for canning purposes.

In the black raspberries, you can plant no better than the Hilborn and the Gregg.

STRAWBERRIES IN MATTED ROWS.

81. SIR,—If strawberries form a matted row, should the runners be cut off?—G. S., *Burnhamthorpe*.

There is no doubt that a judicious thinning out of the runners will well reward the cultivator for his trouble, but practically a large number of our growers are neglectful in this respect. The runners should be allowed to grow the first season until the row has reached a width of eight or ten inches. After this, unless new plants are needed, the runners should be kept cut off. By this means the plants can be much better cultivated with both the hoe and the cultivator than if they were allowed to cover a greater width of ground.

GRAPE BASKETS AND MARKETING.

82. SIR,—I understood, when at a meeting of the Association, that some arrangements were made with manufacturers so that baskets could be got at a less price. Would you kindly inform me name of manufacturer and where you think the best baskets can be had? They are for grapes. Also any information about marketing. This is the first year my vines have borne, and I have had no experience. My Niagaras are loaded, and other kinds not quite up to them. Have 2,200 vines; 1,000 Niagara, others Brighton, Worden, Moore's Early, Vergennes, Rogers 43 and 44, and Delaware. I have no idea how many I may have, but others who have seen them say I should have 2,000 baskets or more. If you know the names of reliable men in the trade that I might correspond with as to selling, and size of baskets, any information you can give me will be thankfully received. R. T. WILSON, *Braeside Vineyards, Dundas*.

The Ontario Fruit Growers' Association has made no such bargain as the one referred to, but the best makers often exhibit their work at our meetings, and advertise in the columns of our journal. We feel confident, therefore, that our correspondent will get baskets both good and cheap from these firms, as, indeed, the writer, who uses a large quantity every year, can testify. We can speak much in the same way regarding the firms who advertise with us as fruit merchants, and would advise writing to them with regard to the size of basket best suited to the market chosen. The best way to sell is, no doubt, by dealing directly with retail merchants; but when one has much fruit to gather and pack for market it becomes next to impossible to pay proper attention to the selling; and, therefore, we usually place that part of the business in the hands of commission men, even if we must take a little less price.

FRUIT EVAPORATORS.

83. SIR,—Could you inform me, through the next issue of the HORTICULTURIST, if fruit evaporators are manufactured in Canada? What firm would you recommend, and what evaporator is considered the best? —THOS. MOYSE, *Central Bedeque, P.E.I.*

We have at hand only two catalogues of fruit evaporators, and these are both American, one of them being issued by the Zimmerman Machine Co., Cincinnati, Ohio, and the other by the American Manufacturing Co., Waynesboro', Pa.; and these will, no doubt, both send you catalogues on application. We shall be glad to hear of any good Canadian evaporator, and introduce it to our readers, many of whom are inquiring about this method of saving fruit that would otherwise be waste.

THE BROWN ROT OF THE GRAPE.

85. SIR,—I send you enclosed bunch of grapes which appear to suffer from a blight from some cause. What is it, and can you suggest a remedy? If so, please refer to it in your next month's paper.—R. KIRK, *Toronto*.

The grapes which you send are affected with the brown rot, a disease which, in

some places, is exceedingly troublesome to grape-growers. It is really a form of the downy mildew of the grape-vine, which first appears on the leaves, and is called by the former name when it attacks the fruit itself. You should gather and burn all specimens affected, so as to prevent the spread of this fungus, and next season begin early to spray with the Bordeaux mixture, or with the ammoniacal sulphate of copper, both of which are elsewhere formulated.

For a more particular description of the brown rot, see Vol. 12 of this journal, page 297.

GRAPES IN MUSKOKA.

84. SIR, — Can grapes be successfully grown in Muskoka, and, if so, what varieties ?—T. B.

Will some Muskoka correspondent please answer ?

THE WALNUT TUSSOCK MOTH.

86. SIR,—I enclose you a specimen of a worm that is infesting the walnut trees in this vicinity, and, if not checked, will completely defoliate them. The trees are so high that it is difficult to reach them with a spraying pump.—W., *Grimsby*.

Reply by Mr. Jas. Fletcher, Experimental Farm, Ottawa :

The caterpillar on the black walnut is *Halisidota Caryæ*, the Walnut Tussock Moth, sometimes very common on walnuts, butternuts, hickories, elms and many other trees. Of course Paris green will kill them if you can apply it ; but this seems to be your difficulty. By fastening your nozzle to the end of a light rubber tube, and then attaching this to a long bamboo, you can raise it a considerable height. You probably know of this method as figured by Dr. Riley. In this way a spray can be thrown over almost any apple tree I have required to treat.

WOOD ASHES ON CLAY SOIL.

87. SIR,—Would you recommend unleached ashes for small fruits or clay soil, or would leached ashes be better ?—A SUBSCRIBER, *Newton*.

As a rule, it is not wise to apply unleached wood ashes to stiff clay soils. The chief objection is the mechanical effect produced by the potash, for it renders such soil more tenacious and lumpy than before ; farther than this, it is less needed upon such soil as manure, because there is usually present a larger amount of potash in composition than there is in lighter soil.

Leached ashes, on the other hand, constitute a very valuable fertilizer on clay land, for they consist largely on carbonate of lime, which is itself valuable as a fertilizer, and has a beneficial effect upon heavy soil, in the first place promoting nitrification, and in the second place, rendering the soil looser and less liable to puddle.

BLACK KNOT.

88. SIR,—Is black knot hereditary or is it spread only by contact, and would it be safe to plant a young plum orchard on the ground of an old one which died a few years ago of that disease ?—A SUBSCRIBER.

No, the black knot is not hereditary, neither is it spread by contact, therefore we see no reason, under this head, why a new orchard should not be planted on the same ground as the old one. The black knot is a fungus which is propagated by very tiny spores. These, though they correspond to seeds in higher plants, are organized upon a lower scale, and grow by cell divisions. Fungi do not have leaves, stems and roots, with all their separate functions the same as plants of a higher order ; they have, however, a portion which corresponds to the root, called Mycelium, which enters in between the cells of the plum wood and draws its subsistence therefrom. The plum knot fungus has also a portion which corresponds with the branches of plants, little thread-like portions called Conidia, and upon these are borne the tiny spores above referred to. It is by these that the disease is propagated. They are so tiny that they float about from place to place in the air, and, lodging upon the wood of the plum or cherry trees, immediately proceed to grow. By this will be seen the great importance of carefully destroying all trees in the neighborhood that are badly affected with the knot, and of always carefully cutting out every knot upon its first

appearance. The wild plum and cherry trees, black with fungus, which often line the road sides in Ontario, are a public disgrace.

PRUNING CURRANTS.

89. SIR,—What rules should be observed in the pruning of black, red and white currants, and young apple trees, respectively? —A SUBSCRIBER.

By referring to page 124, some information concerning the pruning of your trees will be found. With regard to currants, the work of pruning may be done at any time between now and spring. If done later than the 1st of April, the bushes will bleed freely, which, if no very great injury, is certainly no benefit. The method is simple, consisting, chiefly, in the removal of about half the new growth each season, and in the removal of all old and sickly canes. By this means there will always be an abundance of bearing wood, and very little opportunity will be offered for the work of the borer. Where, however, the old canes are seldom cut out, the borer will soon become very abundant and destructive, and the whole plantation sickly and barren. It is therefore evidently wise not to grow the currant in tree form in this country, but rather to follow the renewal system, and to encourage new shoots from the ground year after year.

BOOK ON FRUIT GARDENING.

90. SIR,—Would you please recommend me a good work on small fruits and gardening in general?—H. A. ARDAGH, *Toronto, Ont.*

You can find no better work on general fruit culture than the "American Fruit Culturist," by J. J. Thomas.

TIME TO APPLY ASHES.

91. SIR,—Which is the best time to put ashes on land—spring or fall?—JOHN GIBBARD, Napanee, Ont.

In the case of leached ashes there is little to choose between fall and spring for its application, but unleached ashes are better applied about the growing season in the spring; because, if applied in the fall, the heavy rains might carry the potash beyond the reach of the roots of the plants.

EXTERMINATING PURSLANE.

92. SIR,—Could you, or any of your readers, tell me if there is any known way to exterminate purslane, and if it does much injury to the soil and crops? I think it is the worst weed a gardener or fruit grower has to contend with. The first two or three years it was on my place, I tried to fight it by gathering all I could find, roots and all, and carrying it off the land. I have also poured boiling salt and water on it, but it gets worse in spite of everything.—G. J. R., *Penetanguishene, Ont.*

We know of no better method of exterminating this weed than that adopted by our correspondent of carrying it of the ground entirely, for if pulled out and left lying, it is sure to grow again. Will some of our gardening friends please give their experience?

CLOUD'S SEEDLING AND MRS. CLEVELAND.

93. SIR,—I would like to know if the Cloud's Seedling and the Mrs Cleveland are very productive?—GEO. SAVAGE, *Burnhamthorpe, Ont.*

Reply by John Little, Granton.

There are few varieties as productive as those you mention. Cloud is similar to the Crescent, a few days earlier, as large, and of a better color. It is the leading variety in the south. Michel's Early is ahead of anything yet introduced for earliness, productiveness and vigor of plant. Mrs. Cleveland is mid-season, one of the largest in plant and fruit, and productive. On the fruit stand you would pass many varieties by and choose it. If people were acquainted with Mrs. Cleveland it would be in every garden. It is pistillate, and so is the Cloud.

PLANTING YOUNG FOREST TREES.

94. SIR,—I wish to plant a quantity of young pine, balsam, maple, birch and oak around this place. There are plenty of them growing in the bush around here. Will you please say in your next issue if you think that, with care in transplanting, I might have a chance of success; also, whether fall or spring would be best for the work, with a few hints how to proceed.—W. B. MCLEAN, *Stanley House, Musk.*

There is no doubt that, with care, you may succeed in removing young forest trees for

ornamental planting. Indeed, where these are procurable, we can see no reason for applying to the nurseries for exotics, which may or may not be adapted to the locality in which you live. It is, however, difficult to remove trees from shady places and to make them grow well in sunny exposures, without first accustoming them to the change by degrees. Large trees, too, are less apt to succeed than smaller ones, on account of the greater loss of roots in proportion to the top. It would be better, no doubt, to set aside a small piece of the garden for a year or two, as a nursery plot; and then to select a good collection of our native trees of small size, and grow them with care until they have developed a quantity of fibrous roots, and have acquired vigor to insure their growth in the places where they are required. On the whole, we advocate spring in preference to fall planting, especially in the colder sections of our country.

THE PEAR BLIGHT.

95. SIR,—I have an orchard of fifty trees, and something has caused their leaves to blacken and a great many of the limbs to die. Can you tell me the cause of this, and say if I can prevent its spread?—JOHN MCLEAN, *Mount Pleasant.*

Our correspondent does not say whether his orchard consists of pear or apple trees, but we presume the former. The blight has been so often referred to in these pages that it seems unnecessary to make any further explanation of it here. It is thought by scientists that the pear blight is due to bacteria, the presence of which, in plants and in animals, account for so many hitherto unexplained diseases. The little microbes, which are the germs of the disease, escape from blighted limbs of one tree and float imperceptibly to others; they find entrance through little stomata, or breathing pores of the leaves or young wood; they multiply with exceeding great rapidity in the wood cells, from one to another of which they have a peculiar faculty of making their way by making holes through the thin partitions. Thus, unless checked in some way, the sap of a large portion, if not of a whole tree, becomes corrupted through their action, and suddenly turns black and dies. The only cure, therefore, with which we are acquainted, is to cut off every vestige of the blight as soon as it is discovered. A sharp look-out for it should be made during blossoming time, in the spring.

BUSINESS MEN AS FRUIT GROWERS.

96. SIR,—I would like your advice as to the most suitable book for me on fruit culture. I am a tailor by trade, in bnsiness here some years, and *quite green* at fruit growing. Many years ago I was very nearly attempting the same thing, but circumstances thwarted me; business since has fully occupied me. About six miles from my place of business, between Lambton Mills and Weston, I have some land lying idle. One field of sixteen acres, with a few stumps on, I am told, has yielded good crops, and field of five acres, gravelly. Both fields are level plateaux. These, and a few other fields, are almost wholly surrounded by the Humber river and Black Creek flats. The five acre field is delightfully situated, commanding a good view. I prefer it, but suppose it would hardly pay cultivation. If you could tender me any advice as to fencing, ploughing and generally getting it under weight, whether advisable to put in a few trees and try my hand in a small way, or hire a man and go in larger, I would feel obliged,—THOS. H. TAYLOR, 518 *Queen Street, W., Toronto.*

We hesitate very much to advise any man to engage in fruit growing who is entirely inexperienced in the business. It is hard enough for those of us, who have spent years devoted to the study and practice of this branch of agriculture, to get very rich at the business; and, on the other hand, it would be quite easy for an inexperienced man to lose what property he had. We believe in fruit culture, properly and systematically pursued, as one of the most profitable branches of agriculture, but we cannot advise a man whose life has been spent in a trade, or in mercantile life, to enter into fruit culture for profit. The best plan for our correspondent is to try it first on a small scale, if he intends managing it himself; or, if he can find a gardener who would grow small fruits on shares, finding implements and team, then try it on a large scale. The gardener would no doubt agree to allowing pear, peach, quince trees and grape vines to be planted,

and would care for them, also, by having a liberal portion of the small fruits.

The most economical fence is one of posts and wire. Land intended for fruit trees should be ploughed up this fall and exposed to the winter's frost. If in sod, it would be better to cultivate it to some farm crop the first season, in order to bring it into fit condition to receive the trees and plants. The sample of soil sent appears to be light and sandy, but, if wheat, corn and potatoes have been grown successfully upon it, no doubt fruit trees will also succeed.

SHIPPING APPLES.

97. SIR,—Would you please give the different methods, and proceedings in each method, of shipping apples to the old country, especially with regard to railways and steamships? —A. M. MONRO, *Glanworth, Ont.*

There is no great secret in exporting ones own apples to the old country markets. The first great point is to secure a good and reliable house in Great Britain to buy or to handle your fruit. There are plenty of these, and some of them advertise in our journal. It would of course have been better to have opened up a correspondence with the house, to which you intend shipping, in advance; but this is not necessary, for in most cases the best will be done for you. You need not necessarily mark the shippers' address on the packages; many only use their own particular brand, by which their fruit is to be known in the markets, and the full name of the consignee only on the railway and steamship way bills. At most of the G.T.R. and C.P.R. stations through shipping bills can be made out to the principal cities in England; but if you want your fruit to have especial attention on the journey, so as to arrive in the best possible condition, you would do well to correspond in advance with one of those steamship companies which are making special provision for carrying apples, and then ship your fruit to their care, timing your shipments to arrive in time for the next steamer to leave. Some people seem to think it necessary to have a great quantity of fruit, in order to place it in the old country, but this is a mistake. The only point is to ship only the very best, and put it up in the best manner. We would warn our correspondent, however, that fortunes are not always made in the export of fruit, but that very often there are heavy losses to those who are green in the business, and sometimes even to the old and crafty shippers.

Open Letters

MAMMOTH CLUSTER, HILBORN AND GREGG.

SIR,—In reply to Mr. Beall's note in your last issue, p. 275, comparing Mammoth Cluster, Hilborn and Gregg black caps,—as fruited here this season they ripened in the above order, with Gregg fully one week later than Hilborn and a trifle larger. Hilborn is first in quality and yield of the three, while Gregg is firmer and a better market berry. Mammoth Cluster did not compare with the others in yield. In quality was on a par with Gregg.—JOHN CRAIG, *Experimental Farm, Ottawa.*

CONGRATULATIONS FOR MR. P. C. DEMPSEY.

SIR,—I wish to offer my congratulations to our worthy and highly-esteemed ex-president, Mr. P. C. Dempsey, on his recent escape from the hand of the would-be assassin. How would it do for Mr. Dempsey to present that hat, with the bullet-hole through it, at our next Association meeting as an example of the ravages of the *borer*? Could our esteemed ex-president and fellow-director now say that 'tis better to have been shot at and missed than never to have been shot at at all?—T.H.R.

THE PEAR ON ASH STOCK.

SIR,—In reference to pear stock grafted into mountain ash (see p. 263), would you just permit me to say that five years ago I grafted four varieties of pear into a few thrifty young ash on my premises. The scions all united and grew the first year from six inches to two feet in length. The first winter thaw that came they all turned black as ink. A second trial and a thorough cut-

ting back in September proved no more successful. Pear on mountain ash evidently grows too tender and sappy to stand the winters of this country, and I think Mr. E. J. Phippin, of Park Hill, will find that to be the case, from his experiment.—T. H. RACE, *Mitchell.*

THE SPARROW NUISANCE.

SIR,—In reading the occasional articles and reports of discussions on the English sparrow nuisance appearing in the HORTICULTURIST, the Yearly Report, and in other papers, the idea has occurred to me that the most effective way to deal with this pest would be to attack him in the winter instead of in the summer months. Supposing a farmer or fruit grower who is badly troubled with sparrows were to feed them with grain around the house or barn-yard in the winter for a short time till they came to look regularly for their rations, and then change the diet to poisoned grain, the slaughter would be wholesale. Likewise in towns or cities, if the authorities would encourage them, as in time past, by building houses for them, and feeding them, and then suddenly change to poisoned feed, also in breeding time visit the houses and destroy the eggs or young birds, surely the numbers could be greatly reduced and with much less trouble, expense and danger than by fighting them in the summer. Perhaps some may take this hint and give the method a trial in the coming winter. —G. J. R., *Penetanguishene.*

NOTES FROM WEST NISSOURI.

SIR,—The apple crop in this section is a partial failure, caused by a blight which affected certain varieties, leaving others untouched. The Duchess of Oldenburg and Baldwin will have a full crop ; the Northern Spy from 50 to 75 per cent. ; the Red Astrachan, 20 oz., Snow Apple, Ribston Pippin, and Golden Russet, from 10 to 25 per cent.

Pears are a good crop, no blight of any kind touching either tree or fruit. The Doyenne D'Ete, Clapp's Favorite, Bartlett, Belle Lucrative, Flemish Beauty, Washington, Vicar of Wakefield, and other varieties being loaded with fruit.

Plums, on account of the curculio and the black knot, are little cultivated ; still a few trees which were sprinkled with Paris green are bearing fruit.

Grapes are little cultivated here on account of the late spring frosts, which frequently destroy not only the fruit but also the foliage and young wood. This season has been favorable and the vines are well loaded with fruit, Moore's Early, Delaware, Concord, Worden, Jessica and others yielding a full crop.—JOHN M. MCAINSH, *West Nissouri.*

THE FRUIT CROPS—CAUSE OF BLIGHT.

SIR,—THE destruction of the apple crop is no doubt due to the frost which occurred immediately before the blossom buds expanded, but apparently no such destructive effects followed as that which took effect on the pear trees. I only observed a few twigs affected. The Russian varieties are evidently better suited to resist the eccentricities of our fickle climate—even better than our native trees. I have not observed many in fruit ; even the wild crab apple shows but a sparsity of fruit, an unusual circumstance. The Duchess of Oldenburg and Tetofsky have borne to excess, and the fruit very fine indeed. The Astrachan and Alexander bear well, so also the recently introduced Yellow Transparent, but unfortunately there are not many of these trees here in general cultivation, but are gradually gaining in favor.

Blight has seriously damaged the pear trees in this locality. Out of twenty varieties in my collection only two escaped, viz., the Beurre D'Anjou and Buffum. The Clapp's Favorite are completely destroyed—this variety being the worst and the Doyenne D'Ete and Elliott's Early nearly as bad, the others only partially affected, the least of which are the Bartlett and Seckel. Should the disease even be checked, it will take several years before the trees will assume a symmetrical appearance. I am now convinced that my theory of the cause of blight, viz., the late frosts, and subsequently fermentation by fungoid action, only a natural result. The trouble first originated in the injury to the nectary glands. Even the insects did not come near the blossoms as usual, simply because fermentation had commenced. It is not true in science that micropic fungus is the direct cause ; it is only an effect following a cause, and that being a violation of natural laws, either by climatic influences or otherwise. No natural decomposition can take place without fermentation produced by fungoid action, this being their sphere in the economy of nature.

It is a scriptural truth as well as a scientific fact that "a little leaven leaveneth the whole lump." This is only fungoid action, and what I am afraid of is that the pear trees which have been even partially affected will yet be ruined.

All varieties of the cultivated plum are heavily laden with exceptionally fine fruit. The curculio scarcely made an appearance, In the neighboring gardens there is no fruit on the native or wild plum.

I may also state that little or no injury has been done to the small crop of apples by the codlin moth.—SIMON ROY, *Berlin.*

Our Markets

KINGSTON.

Peaches—$1.50 to $2. *Pears*—Bartletts, 75 cts to $1; Duchess, 65 to 75 cts. *Plums*—$1. *Grapes*—Concord, 2½ to 3 cts. per lb.; Delaware, 3 to 4 cts. per lb.; Niagara, 3 to 3½ cts. per lb.; Roger Red, 3 to 3½ cts. per lb. *Potatoes*—75 to 85 cts. per bag. *Cabbage*—40 to 60 cts. per dozen. *Cauliflowers*—$2 per dozen. *Celery*—40 to 50 cts. per dozen.

MONTREAL.

Apples—Market decidedly improving. Maiden's Blush and Twenty Ounce $3 to $3.50 per barrel; Winter probably $4 upward per barrel. *Grapes*—Concord, 3 to 4 cts. per lb.; Delaware, 5 cts. per lb.; Rogers and Niagaras, 4½ to 5 cts. per lb. *Pears*—Bartlett, 75 cts. to $1.25 per 12-quart basket, $7 to $10 per barrel.

Market bare, prices rising.

OTTAWA.

Pears—Bartlett, $1.10 to $1.40 per 12-quart basket, $9 to $10 per barrel. *Apples*—Fall, $2.75 to $3 per barrel. *Grapes*—Rogers, 4 to 5 cts. per lb.; Delaware, 8 to 10 cts. per lb.; Concord, 3 cts. per lb.; Niagara, 4 to 5 cts. per lb.

GUELPH.

Grapes—Concords in good demand, 3 cts. per lb., with prospects of 3½ cts. for good No. 1 stock; Rogers, selling rather slow, 3 to 4½ cts. per lb.; Wordens, 3 cts. per lb.; Niagaras, 4 to 6 cts. per lb., as to quality; Delaware, 4 to 5 cts. per lb. *Peaches*—Scarce, selling at $1.50 to $2.25 per basket. *Pears*—Bartletts, getting scarce, good stock bringing 90 cts. to $1 per basket, and selling well; all other varieties plentiful, and range from 40 cts. to $1 per basket. *Quinces*—Coming in and sell rather slow yet, at 75 to 90 cts. per basket. *Plums*—A few coming, and find ready sale, 90 cts. to $1.25 per basket. *Tomatoes*—Almost over, but anything good sells well at 20 to 30 cts. per basket. *Cauliflower*—50 cts. to $1 per doz. *Cabbage*—40 to 50 cts. per doz. heads. *Water Melons*—Sale over. *Musk Melons*—From 25 to 75 cts. per doz.

BRITISH MARKETS.

Apples—Fancy Kings, 35s. to 37s. per per barrel; Baldwins, 24s. to 24s. 6d. per barrel.

WINNIPEG WHOLESALE MARKET

September 23rd, 1890.

Grapes—Champion, 4 cts. per lb.; Concords, 5 cts. per lb.; Moore Early, 7 cts. per lb,; Warden, 6 cts. per lb.; Roger and Niagara, 8 cts. per lb. *Tomatoes*—75 cts. per basket. *Pears*—90 cts. to $1 per basket.

NEW YORK CITY.

The week opens with clear cool weather and with an over-stocked grape market. The apple market opens with a firm market with a good demand for all prime fruit, selling to-day as follows:—*Apples*—Kings, $3.50 to $4.25 per barrel; Gravenstein, $4 to $4.50 per barrel; Duchess of Oldenburg, $3 to $4 per barrel; Greenings, $3 to $4 per barrel. *Pears*—Bartletts, $6 to $8.50 per barrel and $2 to $3.50 per keg; Seckle, $5 to $7 per barrel and $2 to $3.50 per keg. *Peaches*—N. J., $2 to $2.25 per basket; Western, $3 to $4 per bushel. *Plums*—Green Gage, $1.75 to $2.25 per crt. *Cranberries*—Cape Cod, $8 per barrel; Medin, $6.50 to $7.50 per barrel; Light, $6 per barrel and $2 to $2.75 per box. *Grapes*—Delaware, 4 to 7 cts. per lb.; Niagara, 5 to 8 cts. per lb.; Concords, 2½ to 3½ cts. per lb.; Pocklington, 5 to 7 cts. per lb.; Marthas 3 to 4 cts. per lb. *Potatoes*—Rose, $2 to $2.25 per barrel; Blush and Queen, $2 per barrel; Burbank, $2 per barrel; Sweet $1.75 to $1.87½ per barrel. *Onions*—Yellow, $2.50 per barrel; Red, $2.25 to $2.50 per barrel. *Corn*—White, $2 to $3 per barrel; Red, $2.50 to $2.75 per barrel; Yellow, $2.50 to $2.75. *Pickles*—50 cts. to $1.50 per 1,000. *Cabbage*—$2 to $3 barrel (100). *Corn*—$1.25 per 100. *Cauliflowers*—75 cts. to $3.50 per barrel. *Butter*—Creamery, 22 to 23 cts. per lb.; Dairy, 20 to 21 cts. per lb. *Cheese*—Fancy, 9½ cts. per lb. *Eggs*—Fresh, 22½ cts. per dozen. *Poultry*—Spring Chicks, 12½ to 13 cts. per lb.; Fowls, 14½ to 15 cts, per lb.; Turks, 11 to 13 cts. per lb.; Ducks, 60 to 80 cts. per pair. *Dried Fruit*—Apples, 16½ to 17 cts. per lb.; Cherries, 30 to 31 cts. per lb.; Raspberries, 31 to 32 cts. per lb.; Blackberries, 9 cts. per lb. *Beans*—Marrow, $2.80 to $2.85 per bushel; Red Kidney, $3.50 to $3.60 per bushel. *Hay*—65 to 70 cts. per cwt. *Straw*—80 to 85 cts. per cwt.

Markets reported by agents of N D.F.G Stock Co. in various places:—Messrs. Vipond & McBride, Montreal; Mr. G. S. Palmer, 166 Reade St., New York; The Imperial Produce Co., Toronto, and H. Walker, Guelph.

LOVING THOUGHTS ON MR. CROIL.

AH, can it be, my friend is gone,
No more he'll hail the "robin's song;"
And the glory of the rising sun
He'll hail no more; his journey's done!
Sing on "wee birdies," sing his requiem,
He's gone beyond our earthly ken;
Great was his soul (his soul's still great)—
Worthy was he on earth; he's worthy yet.
Who knew him longest, loved him best;
Love follows to his blissful rest;
His life sublime, without a stain,
And resolute his racy brain.
No stranger to nature; or nature's end,
For nature's Ruler was his friend;
Sweetly may the lilies bloom
Around his sacred, dreamless tomb.

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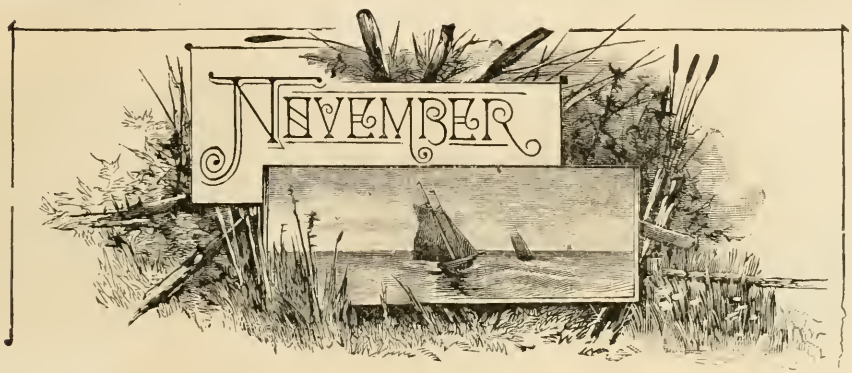
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THE

Canadian Horticulturist.

VOL. XIII. 1890. NO. 11.



HINTS FOR NOVEMBER.

WINTER APPLES.

NOW that the apple crop is mostly gathered, the shortness of the crop is proved to be even greater than was anticipated. Maplehurst orchard is no doubt a fair representation of the majority of orchards in Ontario and in Western New York; and in it, where there should be a crop of several thousand barrels, we have only harvested one hundred; and these largely seconds. There are a few favored sections of our province, and some parts of Michigan also, where there is a fair crop, but these have been speedily bought up by speculators, and will be held for the high prices which cannot help being the outcome of a general failure. In Montreal, the price of winter apples is firm at $3.50 to $4 per barrel, while in New York city it ranges from $4 to $4.50 for fancy fruit. The old country market too is getting excited and as much as $8 per barrel has been paid in Glasgow for choice Kings, and $5 for choice Baldwins.

From all this it is evident that our readers who have apples to sell may safely count upon getting good round figures for them. We do not, however, advise holding too long, for in the month of November competition usually runs about as high as at any other time. Buyers are then laying in

their stock, and each one knows about what he needs to carry him through, Neither do we advise every one to try exporting apples. There is so much to be learned about packing in proper shape for the export trade that many fail in this particular.

But whatever is done with them, it is all-important to grade all apples with respect to both size and quality. The high prices cannot be expected for fruit that is thrown into the barrels helter skelter; such will only bring the price of a second grade, while one first-class barrel will bring the price of two or three of mixed quality. In a year like this, it will no doubt pay to ship seconds to market, but they should always be so marked, and sold for what they are.

It shows a lack of enterprise on the part of our Canadian fruit growers that so little fruit is evaporated at home. By such means, when the crop is large, all second class stock could be evaporated and a good price got for it; while the market would be relieved of that which causes the gluts. There is a market for even the cores and skins, under the name of chopped apples, which are dried and sold for jelly making. Just now the price of evaporated apples in New York city, is from 13 to 15 cts. a pound, while dried chopped apples are worth from 4 to 4½ cents.

STORING FRUIT.

Some of our readers may wish to store fruit either for higher prices or for their own use. To them we would say, that the chief requisite to ensure success, is to keep the fruit at a low temperature. There will be little trouble in keeping apples, pears or grapes, if a temperature can be maintained that rises little above the freezing point. In this case it will matter little whether apples are packed in closed or open barrels, unless perhaps with such varieties as the Golden Russet, which have a tendency to shrivel if at all exposed to dry air. Some writers advise bins in the cellar for apples, or drawers and shelves. Such plans may do very well for the farmer who only keeps a few apples for family use and to feed stock; but the large orchardist, who stores hundreds of barrels, does not want to empty out on shelves or in bins; he wants them in the barrels, which can be removed and emptied out on a packing table when the time for shipping arrives. In our next report will be found an article by President Lyon, of Michigan, on fruit storage, which will be interesting in this connection.

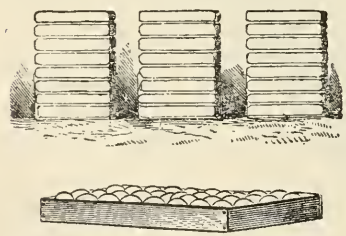


FIG. 68.—DRAWERS FOR APPLES.

For home uses, the plan given by Mr. J. J. Thomas is very good, because it gives one an opportunity of examining his fruit from time to time, and using it as it ripens. He recommends trays, 1½ by 2

feet and about 3½ inches deep, in which to put away choice apples for home use. Such trays will hold just one layer of fruit, and can be piled in vertical piles in the cellar, each succeeding tray being a cover for the one beneath it, as shown in the illustration. The same kind of trays would no doubt be good for keeping grapes for winter use. This is referred to by our Quebec friend, Mr. Pattison, in his article in this number on "Keeping Grapes." Some have also tried packing apples in dry sand, or in oats, and claim to have had wonderful success.

PACKAGES FOR GRAPES.

A great many ingenious devices have been invented for packing grapes attractively for market. The trouble with the twenty and ten-pound baskets so commonly used in the Niagara district is that the fruit on the top is usually too much mashed by the time it reaches the market to sell to advantage. The new protection cover is a great advantage, and does away with this difficulty to a certain extent, but not altogether; for it is impossible to lay the top bunches on evenly. Some handy package is needed which allows the packing to be done from the bottom, so that the upper surface will present a nice fresh and even appearance. A great amount of money is paid nowadays by some people for appearance, and it is only fair that, in an honest way, we fruit growers should have a share in the spoil. Some such a box is described by "Traveller," in *Popular Gardening* and is here shown in fig. 69. It is a light white, wooden box, having a slide bottom from which to pack, and a little slide in the top, on which was pasted a neatly printed label, showing the kind of grape and the name of the shipper. These boxes may be crated together and so easily handled by the express companies.

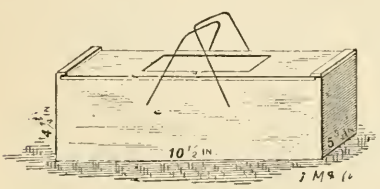


FIG. 69.—WOODEN BOX USED IN MARKETING GRAPES.

CUTTINGS.

This is a good time for the amateur fruit grower to increase his stock of currant and gooseberry bushes at a very slight expense. Cuttings may be made from the young wood of six or eight inches in length, and buried in a dry sandy place, until planting time in the spring, when they will nearly all grow if properly set out. In burying them, care should be taken to place earth and cuttings in alternate layers. Few seem to realize how cheaply such plants may be propagated, for, if they did, less money would be paid to nurserymen for what can be as well grown at home.

FERTILIZING APPLE ORCHARDS.

Dr. Reynolds writes in the *American Agriculturist* showing the necessity of thoroughly enriching the ground about apple trees in order to grow fine fruit. He points out that the common method of placing manure on the surface of unploughed orchard ground, was of little benefit to the trees, because the roots of the grass absorbed most of the nutriment, and very little of it ever reached the roots of the trees. The only plan, without ploughing, would be to so thoroughly mulch the whole surface of the ground that the grass would be destroyed, and then the fertilizers could have some effect upon the apple trees. Of course, no one would think of seeding down a young orchard, it is therefore only an orchard that has reached bearing age that is under consideration. The great difficulty, in our opinion, in carrying out the doctor's plan of mulching, is to find material enough, unless for a very small orchard. When an orchard covers ten acres, or fifty acres of ground, it would be simply out of the question to provide mulch sufficient to keep down the grass. In such cases, the only possible plan we can see, to keep the orchard as it should be kept, is by frequent cultivation. At Maplehurst, where we have about one hundred acres of orchard to care for, we plough up in parts, working up one portion for two or three years, until the trees have reached a vigorous state, as a result of both cultivation and manure; and then seed it down to clover for two or three years, while another portion is undergoing the same treatment.

The question of fertilizers for the garden and orchard is one of the most perplexing that faces the ambitious fruit grower. Stable manure is perhaps the best of all for general application, but what farmer ever has any to spare for his apple orchard? He never has enough for his field crops, upon which so much of his labor is spent, how then could he spare any for his orchard, which shifts for itself. In most parts of the country, wood ashes may be had for a very little cost, and it is by this means alone that we have been able, so far, to solve this question. We find that by giving the trees which are being worked up, one half to a bushel each year during their turn of cultivation, the result will be evident for several years thereafter, and the fruit will be larger, of better quality and of a better color.

THE PARKER EARLE STRAWBERRY.

OUR colored plate this month represents one of the latest competitors for the coveted honor of being heralded as the "coming strawberry." It is named in honor of the president of the Illinois Horticultural Society, Mr. Parker Earle, of Cobden, Illinois.

This strawberry is thus described by Mr. M. Crawford, the great Ohio strawberry cultivator :—"Color, bright glossy red ; texture, firm and quality good. The trusses are large and spreading, the blossoms bisexual, and the plants dark green, strong, stocky and perfectly healthy." He adds, "What I have seen of the Parker Earle corroborates my former opinion that it is an acquisition."

PLUM LEAF OR SHOT-HOLE FUNGUS.

DURING this last season much curiosity was awakened by the peculiar appearance of many of the leaves of our plum and cherry trees. They were full of small round holes, for which there was no apparent cause. We looked in vain to find an insect, to which the damage might be attributed; but the mystery is explained by the following article by Prof. Scribner, on the fungus Septoria Cerasina, in *Orchard and Garden*. This fungus is very generally distributed throughout the States east of the Mississippi. It attacks the foliage, and although not regarded as a serious pest, it often inflicts considerable injury both to the cherry and plum, by interfering with the proper functions of the leaves, or by causing these to drop prematurely, sometimes as early as the first of August. The leaves attacked show, at first, scattered here and there over the surface, dark purple spots, visible on both sides, varying from 1-24 to 1-8 of an inch in diameter. After a brief period it will be noticed that the tissue covered by some of these spots has become dead and brown in color. Such spots usually have their margins clearly defined, and are most often circular in outline. Sometimes this dead tissue drops out from the leaf, leaving a clear cut, round hole, giving the leaf the appearance of having been perforated by shot holes, hence the name sometimes given to the disease, mentioned above.

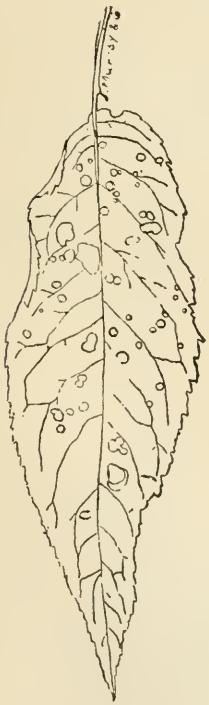


FIG 70.—LEAF-SPOT DISEASE OF THE CHERRY. A SPOTTED AND DISCOLORED LEAF.

If we examine one of the brown spots under a lens, we will usually detect upon the under surface one to several very minute black points. These points are the fruits of the fungus-little capsules, within which the spores of the fungus are produced in great abundance. They, the spores, are very slender, many times longer than broad, and quite transparent. They are usually divided by one or more cross-walls into two or more cells. These spores serve to propagate the fungus; each cell in every spore being capable of producing a new

growth of the parasite. It is thought that the fungus continues its life and completes its development upon the same leaves which it first attacks, after they are fallen to the ground. The spores produced on the old leaves in the spring, serve to propagate the fungus during the new growth of the parts which it infests.

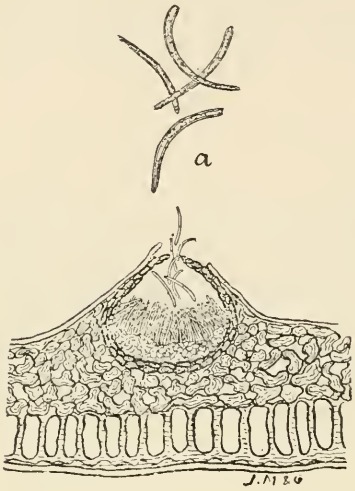


FIG 71.—MAGNIFIED SECTION OF CHERRY LEAF SHOWING FUNGUS CAUSING LEAF-SPOT DISEASE; *a*, FOUR SPORES MORE HIGHLY MAGNIFIED.

All infested leaves are more or less discolored with the purple or brown spots mentioned above, or they may turn before falling to a clear yellow color. In figure 70 is shown a leaf of the cherry attacked by this fungus, exhibiting a spotted appearance, a portion of which has become discolored through the action of the parasite upon the leaf tissue. Figure 71 represents a highly magnified section through the leaf including one of the spore capsules; and at *a*, above, are shown some of the spores still more highly magnified.

We do not know that any direct attempts have been made to prevent the disease here described. The parasite is one which buries itself in the leaf-tissues, and, consequently, whatever treatment is given it must be *preventive*. If the trees are sprayed with the sulphate of copper compounds for the purpose of preventing plum rot on the monilia of fruit, it will be well to observe what effect these applications have upon the development of the leaf-spot fungus.

FRUIT STATISTICS OF THE DOMINION.

MR BUCKLE, says in his History of Civilization, * "Statistics as a branch of knowledge, which, though still in its infancy, has already thrown more light on the study of human nature than all the sciences put together." Herewith is a diagram of the fruit statistics of the Dominion for the past nine years, showing the exports and imports of apples from 1881 to 1889 inclusive. It will be seen that though our exports fluctuate somewhat, they are steadily on the increase. It is believed when suitable varieties are grown, the export trade is simply unlimited. The causes of fluctuation proceeds principally from the failure of the crop, or

*Page 24, Vol 2.

APPLES.

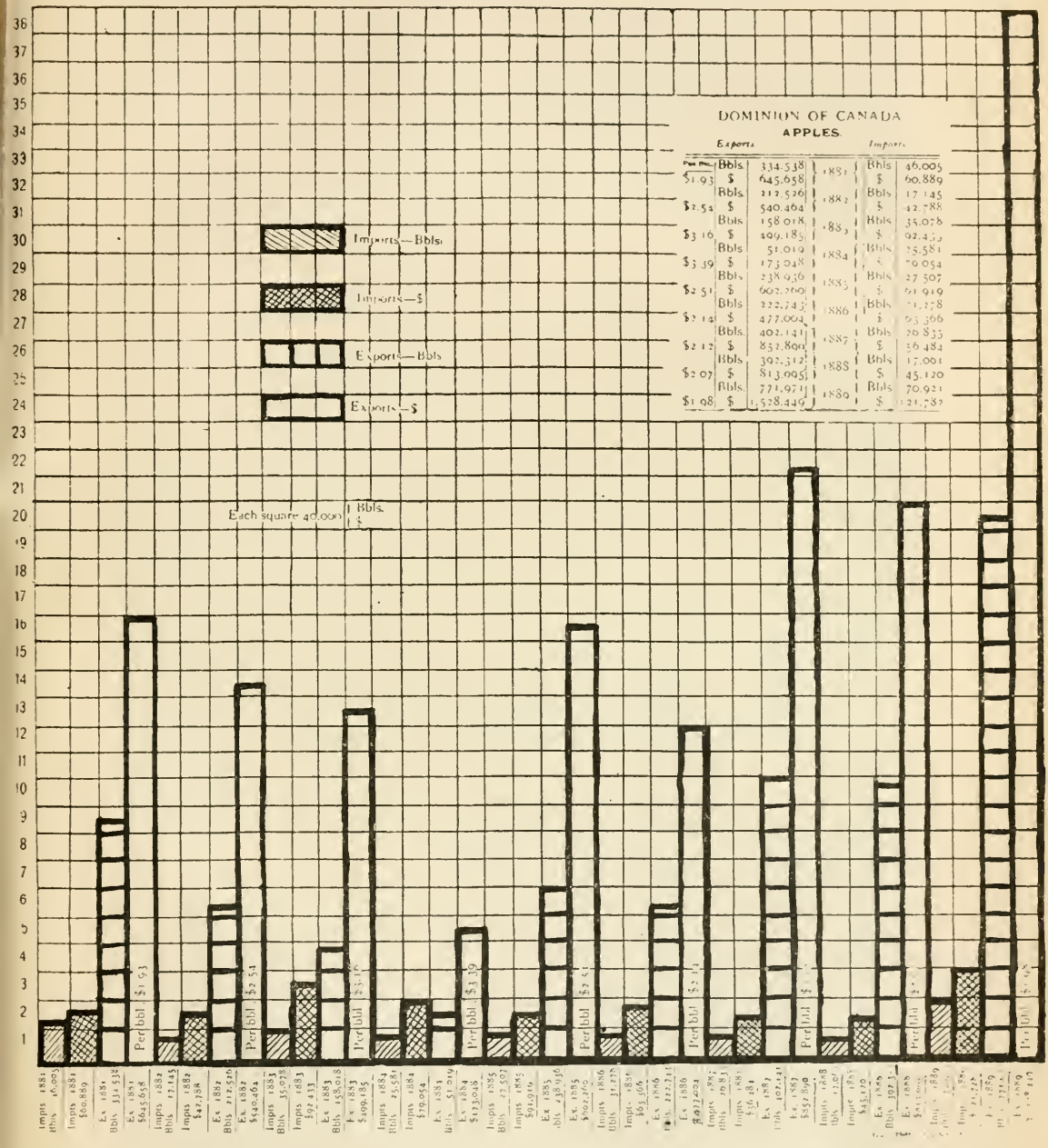


FIG. 72.—DIAGRAM SHOWING QUANTITIES OF APPLES EXPORTED AND IMPORTED FOR THE YEARS 1881 TO 1889 INCLUSIVE.

the unsuitable means of transportation. The latter subject was so well ventilated at the Dominion Convention in the city of Ottawa, last February, that it is probable new methods, such as cold air chambers, will be employed to render the shipments more secure from destruction in transit, and the delivery of fruit in better condition when landed, more of a certainty. The appliances for handling packages en route, the size and shape of them are factors in the export trade. The apple business is now assuming such proportions that it is becoming worth while for individual ship owners to see that proper storage is given to freight of this nature, because there are now so many competing lines of steamers, that consignors have an opportunity of selecting the one which will give the best storage advantages.

It was my intention to show: First, the exports and imports of the various provinces of the Dominion; second, the countries shipped to, and third, the value of fruits shipped, but found: First, the methods adopted by the Customs Department for keeping the export returns did not provide the necessary information, the exports being entered in the customs returns at the port where the goods are shipped, the port of Montreal being the largest shipping port for the British market. The Province of Quebec shows a larger export trade than the Province of Ontario, though the fruit exported is almost entirely grown in the latter province. Second, large quantities of apples are shipped to Europe from Ontario, *via* New York. These are entered by the customs as exported to the United States, and third, the values as given by the customs are those placed on the fruit by the shippers, and do not in any way give the selling price in Europe, which is the true value gained by the Dominion. So that all we can really glean, from the present mode of keeping our statistics, is the bare fact that so many barrels are imported, and so many exported, within each fiscal year. Mr. Geo. Johnston, the eminent statistician of the Dominion, whose office is attached to the Department of Agriculture, and to whom I am much indebted for the figures given, has called attention to the above facts in the press, but it is presumed the expense that would be entailed on a more definite method of keeping the exports and imports, has deterred the Government from making more exact returns.

It will be noticed by the diagram that the exports of 1889 were within a fraction of double those of 1888, and that ever since the Colonial Exhibition, held in London, England, our fruit trade has steadily advanced. The poor apple crop of the present year will, no doubt, do much to diminish our exports, but when circumstances are more favorable to the producers, the export trade will assume larger proportions than ever before.

It would be well if planters would look more to the foreign than to the home market when setting out orchards. Our local trade may be easily over supplied, but if all the land in Canada, suitable for apple culture, was devoted to one large orchard, producing suitable varieties for the foreign

trade, we could not supply more than the demand for really good fruit. The talk about over-production is simply ridiculous. Certainly there will be a surplus of undesirable varieties and of badly grown specimens, for which other means will have to be employed for working them up, such as canning, drying, making jellies, vinegar, cider, etc. Much of the refuse can be profitably used in feeding cattle, sheep and pigs, but a first-class article of fresh fruit will always find a ready and remunerative sale in the markets of the Old World. Especially will this be the case when faster transport is had and better conditions en route are placed at the disposal of the shipper.

Ottawa. P. E. BUCKE.

THE GRIMSBY FRUIT SECTION—II.

CONTINUING our trip eastward from Maplehurst Farm toward the Methodist camping ground, we pass through the quiet and picturesque little village of Grimsby, less than a mile from the former place. There is nothing specially striking or worthy of note in or about the village itself, except it be the large shipping trade that is done there during the fruit season. The short drive from the village to the camp is a very interesting one, and it seemed to me to be the centre of the raspberry section. The Cuthbert was just in its season, and on both sides of the road acres of it were beseiged with busy pickers, sending off, I suppose, thousands of baskets daily. It seemed strange to one, whose great difficulty is to devise a fence high enough and strong enough to protect his few square rods of Cuthberts from pilferers, to see acres of them growing along the road side with no fence of any kind between them and the public highway. There are no wayside fences required in the Grimsby section, as no farm stock are allowed to run at large, and this lends an additional attractiveness to the whole mountain valley.

We reached the camp ground in due time, and found it to be very nicely situated in the heart of this much favored section, overlooking the lake, and the hand of man has done much to add to its natural attractions. But to me it lacked the attractiveness of the fruit farm, the vineyard, and the garden that surrounded it on every side, except the north. It was an "off day" at the park, they said, and although there were two thousand people within the ground, so we were told, it appeared as if they had all gone "off" to sleep, except the hotel clerk who was wide enough awake to take fifty cents apiece for a very moderate dinner. The air and aspect of idleness and suspended activities that prevailed within the park were in too great a contrast with the activities of industrial life on every hand without to be long enjoyed, nay endured, by an enthusiast in horticulture, and in less than two hours we were again among the orchards and vineyards on our re-

turn trip. Hundreds of people go to the park annually to "rest" from their idleness at home, but the industrious fruit farmer toils on heedless of their near presence. To my mind and taste his enjoyment is greater than theirs, and if he rightly enjoys his calling, his reward is certainly greater, for the fruit of his industry is a vastly greater blessing to humanity.

It would be profitless to speculate on the different formation periods that contribute to the peculiarities of the Grimsby Valley, rendering it so peculiarly adapted to vineyard and general fruit culture. The table land is there, then the sudden and tremendous depression of hundreds of feet forming the valley, so called, stretching away to the lake at the north. At the foot of this abrupt ridge, commonly called the mountain, the soil is a deep red clay loam,* its color indicating the presence of a high percentage of iron. This soil is peculiarly adapted to grape growing and its fertility seems almost inexhaustible, as its depth indicates the washings of iron from the rocky crevices, and vegetable debris from the heights above, through incalculable ages. As was said of the Nile Valley, all that this soil requires is to be stirred with the hand of industry, and it will laugh in sweetness and bring forth fruit abundantly. I noticed that many farmers were extending their vineyards, owing, for the most part, to the failure, during the past few years, of peach culture in the locality. Mr. M. Pettit will in a year or two more have over fifty acres in bearing vine and proportionately less of peach and apple orchard. Just why the peach tree should be so destructively attacked by the yellows in this particular section, while it enjoys an entire freedom from the disease in the Niagara district, no one seems to be able yet to explain. But such is the fact. This one drawback, however, is likely to be made up for in a few years by the increased production of grapes. This year, while there is scarcely a peach in the whole Grimsby section, the grape crop is an unusually abundant one. Of the different varieties grown in the Grimsby vineyards and their comparative profitableness, I am not qualified to speak; nor am I of the fruits of the orchards which abound so plentifully on every hand. But of the pleasure awaiting the visitor to the Grimsby fruit section from what he may see and learn, and of the hospitality accorded him by the dwellers in the favored valley, I can speak with the authority of one who has had personal experience.

Mitchell, Ont. T. H. RACE.

ROTATION OF STRAWBERRY CROP.

SIR,—In your journal for September I have read the communication of Mr. Nichol, of Cataraqui, in which he writes under the question: "Can Strawberries be continually grown on the same land with profit?" After dealing fairly with the question, Mr. Nichol brings in, very strongly,

* The prevailing soil in this fruit district is a deep, rich sandy loam.—ED.

evidence to prove that "the second crop of apple trees cannot be grown successfully on the same ground."

Here is my experience with the latter. The soil I have to deal with is a marl with a clay sub soil. I cleared away the old orchard, the trees were large, one in particular was three feet in diameter, spreading its limbs from one side to the other—fifty feet. I cleared the roots so as not to be touched by the plough. The manure I have used is barnyard and ashes. Thirteen years last spring I planted the ground with Duchess of Oldenbury and Wagener apple trees. The Wageners have not done well. They give me full crops of fine fruit, but the trees are unhealthy and are dying out. This variety does not succeed in any soil in this locality. The Duchess has done well, and presents an appearence in growth, quality and quantity of fruit not to be surpassed. This year from fifty-three trees we picked and shipped 146 barrels of No 1 fruit. We sold to a house in Winnipeg, at $3.00 per barrel here. Sixty Duchess were planted twenty feet apart each way. Three trees had no fruit this year, and four had been replaced with other varieties.

If Ontario can produce a finer orchard, growth of wood, quality and quantity of fruit, I would like to see it. Many of the limbs and two of the trees were broken down with fruit.

Rednersville. W. R. DEMPSEY.

HON. JOHN DRYDEN, THE PRESENT MINISTER OF AGRICULTURE.

THROUGH the courtesy of the *Farmers' Advocate*, we are enabled to give our readers an excellent engraving of our new Minister of Agriculture, the Hon. John Dryden, of Brooklin, Ont. Since our Association exists under the patronage of the Department of Agriculture, it is of especial interest to us to know who is at the head of it, and whether he is a gentleman interested in the progress of our work. We have reason to believe that the interests of the gardener and of the fruit grower will not be less carefully fostered by the present minister than under his able predecessor, the Hon. Charles Drury.

Mr. John Dryden was born in the year 1840, in the township of Whitby, and received his education at the High School of the town of the same name. He was a very bright student, and completed his studies with great credit.

The same ambition to excel which characterized him as a student seems to have marked his course as a practical farmer, for his path has been one of constant progress and acknowledged success. At first renting his father's farm of two hundred and thirty acres, and paying the rent annually as long as his

father lived, he afterwards added to this about as much more land, and managed the whole in the most enthusiastic manner. Every detail came under his own immediate observation, and nothing was allowed to be done in slipshod style.

Although the raising of pedigreed stock has been the chief aim in Mr. Dryden's farming, and that upon which his reputation as a farmer has more



FIG. 73.—HON. JOHN DRYDEN.

especially gone out in the world, yet he is by no means behind hand in fruit culture, having several fine orchards, which are a large source of profit.

Step by step, he has been coming forward into public life, until he has reached his present position, a position of power and influence, which we are confident will be used for the benefit of his fellow farmers and fellow fruit-growers.

PERFECTLY HARDY.

IT has long been a common practice with some nurserymen and dealers to send out new trees and plants designated as perfectly hardy. There seems to be a gross misunderstanding as to what is really meant by the designation. It is very often misleading; I have frequently been deceived by it, and I know of thousands of others who have been deceived in the same way.

Peach trees cannot be grown north of Toronto, therefore they cannot be said to be hardy. The so called Russian Apricots are said to be hardy; but they are not, because they cannot endure very hard frost.

The fact that a tree is grown and may have originated in Russia does not by any means prove that it is perfectly hardy. Peaches and many varieties of apricots thrive well on the north shore of the Caspian Sea, which could not be grown on the Baltic; and even in that part of Russia trees are grown which would not endure the climate of the northern part of Ontario.

In Russia, as well as in China, there is grown an endless variety of apricots, which are not hardier than peaches. In Transalpine Dauria, in the empire of Russia, there is found growing a double flowering kind of apricot, which is said to be hardier than any of the fruit-bearing kinds; but along with it is found growing on the same mountains the Rhododendron Dauricum. Now, we know quite well that none of the large flowering Rhododendrons can endure intense frost; so, to suppose that all the native trees and shrubs of that part of Russia are hardy enough for the northern part of Ontario would be a great mistake, and trees which will not endure that climate should not be designated as perfectly hardy.

The Russian Mulberry is not perfectly hardy, yet thousands of farmers have purchased it, supposing it to be so because it is grown in Russia, and I daresay many of the same dupes will readily invest in the next Russian novelty—for, just as Mr. Dempsey says, some farmers seem to like to be humbugged.

Cataraqui, Ont. D. NICOL.

A HANDY FORCING HOUSE.

THE annexed illustration, reduced from *Home and Farm*, represents a fire hotbed or forcing house, described as follows: The sashes are 3x8 feet, the beds built with 1½-inch oak, three feet deep on the higher side, and 30 inches deep on the lower side, giving a six-inch slope to the south. Oak posts were used every eight feet. Then a scantling was nailed eighteen inches from the top on each side to hold up the floor. The

flue for conveying the heat is below the floor. Two scantlings run the entire length of the bed with props under them to hold them up on each side of the flue. The floor must always be built strong or it will break down. It holds ten inches of earth and here the seeds are planted. Wood is used for fuel, and but little fire is needed. Build the furnace on a level with the ground or a little lower, excavating a place five feet deep in which to stand and fix the fire. The flue has a rise of eighteen inches in the first twenty feet; after this fifteen to eighteen inches to the end of the bed is sufficient. Two boards seven inches wide, and two nine inches wide, all twelve feet long will answer for the chimney. To make the furnace, use three grate bars, each 5x40 inches, and raise them ten inches from the ground on bricks. These are enclosed with firebrick, fire-clay tiles cover the top and fire-clay should be used for mortar. The flue for the first ten feet must be made of fire brick. Common brick will answer the balance of the way. A board roof should be placed over the furnace excavation, and sheet iron should be nailed above the furnace door to keep it from taking fire. Four air holes on a side allow the air from the space beneath the floor to rise under the glass. If it should get too warm, boards could be laid over the apertures. Do not burn coal. The soot will choke the flue and coal gas is sometimes generated, which is fatal to the plants. A vessel made of galvanized iron and placed on the furnace generates moisture, and makes it more desirable for plant growing.

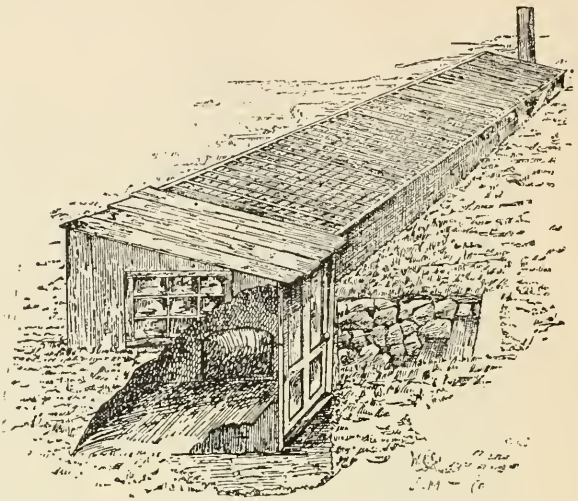


FIG. 7.—A HANDY FORCING HOUSE.

THE APPLE HARVEST.

AFTER growing a fine crop of apples, careful gathering and assorting are indispensable to success in selling. An open shed with northern exposure is desirable. The apples should be picked into padded baskets with swinging bales, so that the basket can be let down to the

bottom of the barrels and turned carefully over. The barrels, after being filled, should be taken on a platform wagon to the shed and sorted, being marked according to quality. The proper time to pack depends upon the locality. Fall pippins picked early keep fairly well until February. The Hubbardstons should be picked by September 20; Baldwins and Russets come in last. This fruit, well grown and carefully handled in cool cellars or cold storage, can be depended upon for fair prices. Two hundred and forty barrels per acre sold at $1.50 per barrel, net $300, which is not an extravagant estimate for a good orchard. Pick and pack the fruit absolutely from one end to the other in each barrel. Do this each year and your name will be a guarantee, your reputation widely known and your produce will obtain ready sale at fancy prices with an ever-increasing demand.—*P. M. Augur, Middlesex County, Vt.*

FALL SET FRUITS.

EARLY spring is the best time for transplanting strawberries, but raspberries, blackberries, currants and gooseberries can just as well be set in the fall after the leaves have dropped. Strawberry rows should be 3½ ft. apart, blackberries 7 to 8 ft. with plants 2½ ft. in the row. Cuthberts and all tall-growing raspberries should be 7½ ft. and Brandywine and small growing varieties 6 ft. between the rows and 2½ ft. in the rows. Use a hand hoe only where a cultivator cannot be run. In strawberries be sure you go through the rows the same way each time, narrowing your cultivation as the plants spread. Ground bone and unleached ashes have proved to be the best kind of fertilizer with me. Raspberries require the least fertilizer. With all small fruits the land should be well manured with yard manure the year before setting out. Ground bone which has been mixed with twice its bulk of ashes, moistened and covered for a few weeks with dry loam or plaster, is especially acceptable to strawberries, raspberries and currants. As a farm crop I prefer the matted row system of growing strawberries, but for the garden or for a fancy trade the hill system is preferable.

They should be cultivated once in two weeks the first season after setting, and it is best to plough them under and raise some other crop after the second season. Set out a bed every year to keep up a good supply. A field of Cuthbert raspberries set on good soil six years ago, and have since had good cultivation between the rows until picking time, are growing better each year, although they have not been fertilized. Some Brandywines, set seven years ago, gave me as fine berries as they ever did last season. A field well cultivated, fertilized and weeded will remain in good condition for years. Blackberries require more frequent fertilizing and

should be set on moist ground. Many writers recommend setting on high gravelly soil, but this advice has caused many to go out of the business as unprofitable. Three years ago I sold from a little over one-third of an acre of Wachusett Thornless blackberries $325 worth, besides using and canning quite a quantity.—*G. W. Goddard, Hillsboro County, N. H.*

GRAPES.

KEEPING GRAPES DURING WINTER.

THE cultivation of out-door grapes for domestic use has become so general that the subject of keeping them for winter use, and the best method, may profitably claim attention. The past season I selected from over one hundred varieties in my grounds, forty of those in general cultivation, and a few very recent introductions, to test their keeping qualities. It is the generally received opinion that the thick-skinned native seedlings are the only keepers. This is correct so far as regards preserving flavor, but several hybrids of foreign blood are the best keepers known. The varieties intended to be laid up for winter use should be those only which adhere well to the stem, and are not inclined to shrivel soon after removal from the vine. They should be allowed to remain on the vine as long as they are safe from frost; a clear dry day is necessary for picking; careful handling andsh allow baskets, are important. The room in which they are to be kept for awhile should be well ventilated, and the fruit laid out in single layers on tables or in baskets, where the air freely circulates, closing the windows at nights and in damp weather. In about ten days the stems will be dried out sufficiently to prevent moulding after they are laid away. When danger from this is over, and the stems resemble those of raisins, the time for packing has arrived. I have used baskets for permanent packing, but much prefer shallow trays or boxes of uniform size to be placed one above the other so that each box covers the one below, the uppermost only needing a cover. Until very cold weather the boxes can be piled so as to allow the remaining moisture to escape through a crevice about the width of a knife blade. Before packing, each bunch should be examined, and all injured, cracked and rotten berries removed with suitable scissors; if two layers are packed in a box, a sheet of paper should intervene; the boxes must be kept in a dry, cool room, or passage, at an even temperature. If the thermometer goes much below freezing point, a blanket or newspaper can be thrown over them, to be removed in mild weather. Looking them over once in the winter and removing defective berries will suffice, the poorest keepers being placed accessible. Under this treatment the best keepers will be in good eatable order as late as February, after which they deteriorate.—*W. M. Pattison, of Clarenceville, P. Q., in American Agriculturist.*

UNFERMENTED GRAPE JUICE THAT WILL KEEP.

The grapes are picked when they are well ripened, and the juice expressed and bottled as soon as possible afterward.

The bottles are filled brimful, and placed up to their necks in the vats of hot water within ten degrees of the boiling point. When the must is as hot as the water, the cork is forced into the bottle, expelling a portion of the liquid. If the least measure of air is left between the cork and the liquid, the oxygen contained in the air will set the saccharine matter in the wine in motion, and fermentation will ensue.

When the cork is forced into the bottle the liquid is in a state of expansion from the heat. As it cools, it contracts, leaving a vacancy between the cork and the liquid. But the vacancy must not be an atmospheric chamber. The cork must, of course, be thoroughly air tight. If fermentation does set in, it may be driven off by re-heating the wine. The bottles are then laid on their sides in a cool place, and the organic foreign substances must be allowed to settle, so that the liquid may become clear.

The settling may occupy whatever period the manufacturer chooses. Sufficient time should, however, be given. But, it can lie six months or a year without damage. At the end of the settling period it is decanted into other bottles, the sediment being left behind. These bottles must be brimful, and are again set into vats of hot water heated up to the same degree as at first, and corked in precisely the same manner, using sealing wax to exclude the air. The wine is then left to cool in the ordinary way, and must be kept in a cool place.

It is now ready for use, and will keep as long as it is kept free from contact with the atmosphere. It forms a delightful beverage, entirely free from alcohol, and is valuable for invalids and children.—*From address of E. Hulse before the Victorian Vegetable Commission of Australia.*

THE JUICE OF THE GRAPE.

Those who wish to make wine must wait until the grapes are fully ripe, for the quality and body of wine is in proportion to the quantity of sugar the grapes contain, and the saccharine matter is in proportion to the maturity and perfection of the fruit. A grape to make good, sweet, or fermented wine, should weigh on a must scale 80°, which is equal to two pounds of granulated sugar to the gallon. If it does not come up to this standard it is not fit for wine, and is but little better than crab apple cider. The principal secret in making either fermented or sweet wine, is to have grapes of high quality. Then mash and press them, and for fermented wine put the must in clean casks and let it work just until it is over; then bung up tight to exclude the air, put it in a good cellar and let it alone, except to make a small vent hole, which should be opened once in a while to let such gas as may accumulate escape.

To make sweet wine, as soon as it is pressed out add five grains of salicylic acid to each gallon of must; let it stand in a vessel about fifteen hours to become clear, then draw the clear must off and put it on the fire. As soon as it boils bottle or can it in air-tight jars, and it will keep for years in perfection, just as fresh as when first put up. The salicylic acid should be rubbed up into paste with some of the must, or cut with alcohol before putting it into the must, or it will float on the top. This acid is not put in to keep it, but for the purpose of settling and making it clear It may be boiled and skimmed, but it will never become so clear and good as with the acid, neither is it as quickly and readily done. This is our method and one that we have used for years, and found every way satisfactory.—*Orchard and Garden.*

BURDOCK CUTTERS.

THE accompanying illustrations are from the *Country Gentleman*, showing two instruments that are useful in the work of destroying this very noxious weed. The one at the top of the illustration is made by the use of an old spade handle and a piece of an old wagon spring. The blade of the other instrument, shown at the bottom, is a wide piece of an old wagon spring, twenty inches in length, sharpened at both ends. A block of hard wood, seven inches long, is bolted to the centre of the blade, to hold the wooden handle forty inches in length. With this latter instrument, it is claimed that burdocks can be removed at a rapid rate.

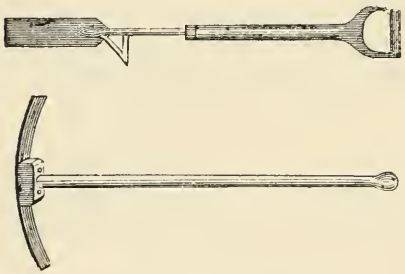


FIG. 74.—BURDOCK CUTTERS.

The writer has been fighting burdocks during the last summer with a tool that has worked well. It was simply a solid iron bar about one inch square and about four feet long. This was rounded at the upper end for a handle, and flattened at the bottom into a chisel shaped blade about two inches wide. With this a man could destroy a large number of weeds in a day, and very effectively; for with a single blow they may be cut off an inch or two below the surface of the ground, so that there will be no chance of their throwing up new shoots. In our opinion there is no weed so hateful about dwellings or in pastures, as the burdock. It clings to one's clothing, it becomes matted in the manes of the horses, and in the tails of the dogs and cows, and is only removed with the greatest difficulty. We place this and the Canada thistle in the same category, and make it a special point to allow neither one to perfect its seeds anywhere about the premises.

New or Little Known Fruits

THE WILLIAMS STRAWBERRY.—Mr. John Little thinks this berry no improvement on Bubach, Eureka or Mrs. Cleveland, either in size or productiveness. We would like it tested by growers in different localities and on various soils. Growers about Brantford seem to prize it very highly, indeed above any other variety, and the samples shown us would lead us to do the same.

SEEDLING APPLE from W.W.Higginson, Hawkesbury, Ont. Description: Large, round,conical, color bright red,splashed and dotted, calyx half open, basin shallow, stem long thin, cavity deep smooth, core open, flesh yellowish white, fine grained, flavor sub-acid, highly aromatic. An early autumn dessert apple, worthy of trial. Note by Mr. Higginson: "Originated on the farm of Henry Walker, Vankleek Hill, Ont. The tree is of iron-clad hardiness, a good bearer, comes in after Duchess and will keep for a month, a pleasant eating and cooking apple."—JOHN CRAIG, *Central Experimental Farm, Ottawa.*

SEEDLING GRAPES.—Two samples of seedling grapes have been sent into this office; one from Chas. H. Biggar, Niagara Falls S., a dark red grape, of medium size, and very close bunch; the other from Frank Hunt, St. Thomas, which was so crushed in the mail that it was impossible to judge of its value. He writes: "I send you a seedling found growing in Judge Hughes' garden—a heavy bearer, probably a seedling of Agawam." So far, we see nothing in either of these grapes to make them more valuable than other varieties already existing, of the same season, as Lindley, Brighton, etc., and unless a variety has some peculiar excellence beyond those already in cultivation, it would be better not to have them brought before the public.

IRETON'S SEEDLING APPLE.—Mr. W. H. Wylie, of Carleton Place, sends us a rather handsome fall apple, which might be desirable were it not for other more beautiful apples of its season, as the Golden White, the Alexander, the Larue and others. Mr. Wylie says:—

SIR,—I send you by mail a sample seedling apple, grown by Mr. John Ireton, of Lanark township. It is a medium sized apple out of about a dozen he gave me. I have had it about a month. It looks like a good fall apple, and is handsome fruit. The tree is young, and was grown from seed by Mr. Ireton.

The apple may be thus described:—Size, above medium; form, slightly conical, obscurely ribbed; color, light green, striped and splashed with bright red; stem, short and stout, set in a deep, regular cavity; calyx closed, in an irregular basin: flesh, white, tender, juicy: quality, fair for cooking. Season, October.

THE HALIBURTON APPLE.—

SIR,—We mail you herewith two apples, samples of an alleged seedling grown in the Haliburton district and which in that section goes under the name of the "Haliburton." Can you inform us if it is simply some old variety to which a new name has been attached? What is your idea of the apples as to quality, etc.? The tree is represented as very hardy and bears heavily every year.—CAVERS BROS, *Galt, Ont.*

This is no doubt a purely local apple, and appears to have some value on account of its beauty of appearance. Prof. Saunders gives us the following description of it :—

Haliburton, grown north of Peterboro, size medium or under, $2\frac{5}{8}$x$2\frac{1}{8}$, form oblate, color pale yellow, nearly obscured on the side exposed to the sun by carmine red, marked with splashes and streaks of a deeper hue. Stalk short and moderately stout, set in a small but rather deep cavity, calyx open with a very shallow smooth basin. Flesh fine grained, creamy white and more or less tinged with pink, rather soft in texture, austere and with an acid taste, with very little flavor, a pretty apple but of poor quality. Ripe latter end of September.

A GREEN FAMEUSE.—Mr. R. W. Shepherd, of Montreal, writes as follows regarding this seedling :—

SIR,—I am sending you to-day, by parcel post, a box containing two specimens of a Fameuse seedling apple. The original tree is growing on our farm at Como, Que.,—must be about 25 or 30 years old—and grew up where some old Fameuse trees formerly stood, but which succumbed to the severe winter which killed off almost all the Fameuse orchards in this province some thirty years ago. The tree is apparently quite hardy. Fruit is (as you will see) larger than Fameuse, but not nearly so much colored, in fact only odd specimens have any blush at all. This apple has been propagated by me to a very limited extent under the name of *Green Fameuse*. When you taste it, you will find the true Fameuse texture of flesh and flavor. I think the variety is worth propagating, being a heavy bearer, good size, excellent quality, and very little, if any, given to spotting. The Green Fameuse having a tougher skin than its parent, carries better and keeps longer. I shall be pleased to send you scions of the variety if you think well of it.—R. W. SHEPHERD, JR., *Montreal, Oct. 3, 1890.*

We have received the samples in good order, and can vouch for the truth of the statements above made with regard to this apple. The only fault we see in it is its color, which, of course, is a serious one in an apple that is chiefly wanted for dessert purposes.

A WEEPING APPLE TREE.—Mr. Robert Moore, of Zurich, Ont., sends to the Ontario Agricultural College, a photograph of a weeping apple tree, which may possibly take the fancy of some people as an ornamental. We cannot, however, see the advantage of a weeping tree of any kind except for special situations because it is the very hardest form of trees to work into a lawn with other trees; and a tree must have something specially commendable to be desirable as a single specimen in a prominent location. An apple tree would scarcely have enough beauty of foliage to be employed in this way, and therefore we see little in this novelty, except that it is a curiosity. Mr. Moore writes as follows: "I mail you a photograph of weeping apple tree which I raised from seed. It grew among a lot of stocks for grafting purposes. This one showed from the first that it was inclined to be a weeper,

and while still young, bore apples on limbs turned down, near the ground. I send you a sample of the fruit which I would like described." The apple is a small, yellowish skinned, fall apple, of fairly good flavor, but inclined to spot. As a fruit, therefore, it does not merit a full description, having no particular value.

RENAUD'S SEEDLING APPLE :—

SIR,—I send you by to-day's mail four specimen apples, which, I trust, will reach you safely in due time. The tree from which they were gathered to-day is a chance seedling on the farm of my neighbor, Mrs. Bte. Renaud, and is probably about eighteen or twenty years old, vigorous and healthy, but not large. Six bushels of fruit were picked to-day, and I should say fully equal to half that quantity had lately fallen, owing to high winds. The fruit is at its best after the month of March, and keeps till July. The tree is a heavy bearer three years out of four. The two large specimens sent are from the original tree, the two small ones are from a top graft on Hyslop crab. The difference in size is remarkable.—ROBERT HAMILTON, *Grenville, P.Q.*

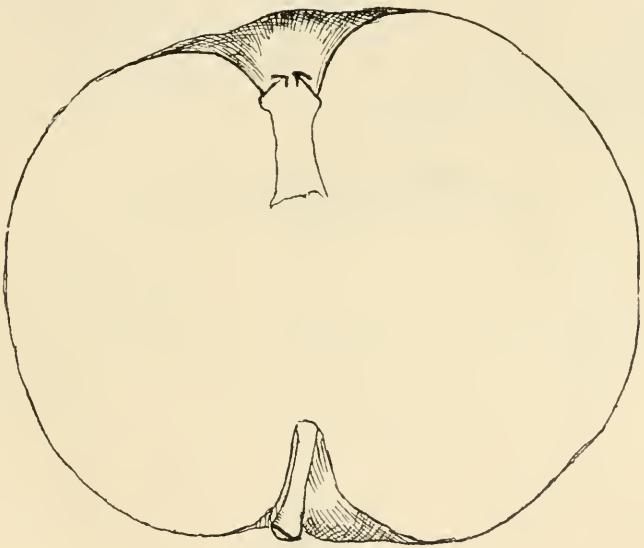


FIG. 75.--SECTION OF RENAUD'S SEEDLING.

This apple well merits description on account of four points of excellence, viz., size, beauty, productiveness and hardiness. Grenville is about north latitude 45½, or on a line with the Parry Sound District, and while we have for this parallel hardy summer and fall apples, we have scarcely any hardy winter apples worth recommending, except the Wealthy, which is not a long keeper.

The difference between the sample grown on the crab stock and that grown on the ordinary apple stock is most marked the former being only about 2½ inches in diameter and the latter about 3½ inches, thus showing plainly how great the influence is of the stock upon the scion with respect to size. The color of the crab-grown samples is much deeper red than that of the other. The apple may be described as follows :—Size, large ; form, roundish, with three or four

more or less prominent ribs ; skin, green, almost completely striped and splashed with bright red ; stem, medium, in a small snug cavity ; calyx closed, in a smooth regular basin of moderate size ; flesh, creamy white, firm, of a pleasant, vinous flavor ; quality, good ; season, March to July.

HENDERSON'S SEEDLING APPLE :—

SIR,—I send you a seedling apple, a winter variety. I showed it to Mr. Holton, of Hamilton, and he advised my sending it on to you, as you are secretary of the Ontario Fruit Growers' Association. The apple is a splendid keeper, and has a delicious flavor. Please give your opinion of it.—G. G. HENDERSON, *care of J. Winer & Co., Hamilton, Ont.*

This is a beautiful sample of an apple, and is as excellent in quality as it is beautiful in appearance. If it averages on the tree anything like the sample before us, it is well worthy a place among our finest winter dessert apples. It may be thus described :—Size, medium ; form, oblate, regular, except that it is obscurely ribbed ; skin, a beautiful creamy white ground striped and splashed with pink, shading into a deep red on the sunny half ; calyx closed, set in a medium sized, somewhat rugged basin ; stem, very short, in a broad shallow cavity ; flesh, snow white, tender, juicy, with delicate aromatic flavor ; quality, best. A winter apple, exact season not determined.

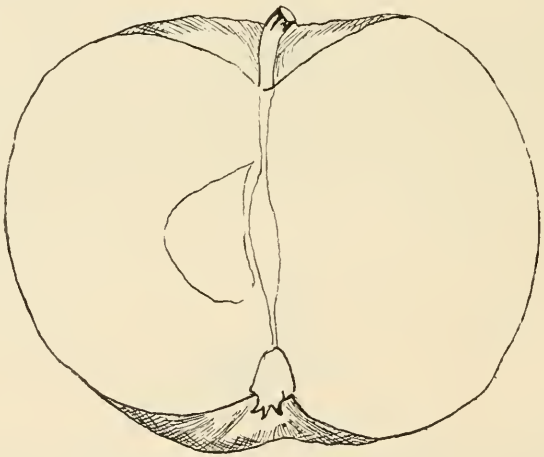


FIG. 76.—SECTION OF HENDERSON'S SEEDLING.

THE GOLDEN WHITE.—We have received from R. Brodie, Montreal, two fine samples of the Golden White, one of the most promising Russian apples. It compares favorably in beauty with the Duchess of Oldenburgh, ripens later in the season, about the first of October, is rather larger in size, and would sell at top prices in our markets. Surely if our friends in the northern sections can grow such apples as Yellow Transparent, Duchess of Oldenburgh, Golden White, La Rue, Wealthy and Renaud's Seedling they have as good prospects for success in apple culture as we, who live in more favored sections. Professor Saunders, Director of the Experimental Farm, Ottawa, describes this apple as follows :—Golden White, from Montreal, said to be

of Russian origin. Size large, 3¼x3⅛, form nearly round, unevenly ribbed, color reddish yellow but almost concealed by pale red with numerous splashes and streaks of deeper red, in which are many pale dots, stalks short and fairly robust, cavity small but deep, calyx of medium size, partly open in a rather strongly ribbed basin. Highly perfumed. Flesh creamy white with a slight tinge of pink, rather soft and a little coarse in the grain, crisp and moderately juicy, mildly acid and high flavored. Quality good. Core of medium size. A pleasant apple to eat and would no doubt cook well. Ripe latter end of September.

RUSSIAN APPLE BERESINSKOE.—Distributed in 1885. Mr. F. W. Coate, of Cape Elizabeth, Rosseau, writes :—

> In 1885 I selected from the Fruit Growers' Association's list of premium plants a Russian apple tree, Beresinskoe. I received and planted the little tree on the 13th May. This year it has borne for the first time, 17 apples. I send you by mail six of them, that you may judge if the beauty and quality of the fruit is worth notice in THE HORTICULTURIST.

This apple is described by Prof. Saunders as follows :—Beresinskoe (?) probably Berezinskoe = Beresina. Size medium, 2½x2½, form nearly oblong, color pale greenish yellow, with a bright red shading on the part expo ed to the sun, and a few dots and streaks of deeper red. Stem long and rather slender, and set in a moderately deep cavity, calyx nearly closed, in a shallow strongly ribbed basin. Flesh yellowish white, more or less water-cored, of moderately fine texture, a mild, nearly sweet, character, with an agreeable but not high flavor. Core large. The specimens are too ripe to admit of accurate judgment as to quality, but it would probably be entitled to rank as good. A pretty apple, would make a nice dessert fruit and would probably cook well.



✻ Flowers ✻

THE ENGLISH PRIMROSE.

(For the Canadian Horticulturist.)

PALE Primrose, with thy starlike face
Now paler still,
Dost thou not like Canadian skies
And winter's chill?
Thoughts thronging come of early days
And "scads"* of showers,
When roaming through the shady lanes
In search of flowers.
But Canada's a glorious land
Of generous soil,
Thousands, aye thousands, now set free
From half-paid toil.
No Proctor 'mong our fields of grain
May calculate
How many "tenths" of this and that
He now may take.
A retrospect is sometimes good
To awaken gratitude,
For daily mercies here enjoyed
And wholesome food.
Yet blessings of a higher boon
To us is given,
Freedom to worship God alone,
The God of Heaven.

Owen Sound, 1890. MRS. DR. MANLY.

*."Scad."—Ask a countryman in Devonshire, *Will* it rain to-day? The answer is, "Only a few scads, sir."

ARRANGING FLOWERS IN A BOUQUET.

WHERE the stems of flowers are short, or the object is to tie a flat or rounded hand bouquet, how is one to proceed in spreading the blooms? Let us watch the commercial florist tie up a nosegay. In the first place, if any flowers are too slender to be stiffly supported by their own stems, or the stems of which are very short, he supplies a wire to make up the deficiency of nature. Then he commences his bouquet by selecting a good bold flower, such as a rose, lily or camellia, for the centre, which he winds with a strong thread on to a thin stiff twig. Around this centre flower he then places a few leaves, and outside of these, to be an inch or two below the flower he binds sufficient moss, so that when a circle of flowers is added, they will not unduly crowd or overlap the first flower. It is usual to start with smaller individuals or trusses of flowers in this front line outward and place a few light sprays of bloom between them, to stand out boldly above the regular surface, next another ring of moss is bound on the centre stem, after which more green is applied and another circle of flowers and of projecting sprays. In this manner the bouquet is proceeded with until a suitable size is reached, when it may be finished by the addition of an edging of pleasing foliage, as smilax, fern, rose or camellia leaves.

In the making of a bouquet thus, the use of a variety of flowers is assumed. But the style now very much and very sensibly in vogue, is the use of but a single kind of flowers in a bouquet; it may be of roses, sweet peas, mignonette, violets, pansies, tulips, lilies, or other kinds. In this case the course to employ for preventing crowding is not dissimilar from that we quoted. But to avoid a stiff and monotonous appearance in the bouquet, pains must be taken to have some flowers stand out considerably beyond the others and yet not to be crowded, a matter easily effected by the use of plenty of moss back of the inner line of flowers, for keeping the arrangement open.—*Popular Gardening.*

PLANTS AT REST.

MANY flowering and foliage plants used for decorating the grounds in summer, are kept during the winter in the cellar, or sometimes, with plants of low stature, in a pit. If there is a furnace in the cellar, that will unfit it for keeping plants; but a detached root cellar may be used. With plants in a completly dormant state, no light is needed, but with those plants that begin to grow in very early spring, unless they have some light, the foliage will become blanched. Plants at rest, while they require very little water, the soil must not get dust-dry. Soil in this condition wil abstract moisture from the plants and ruin them. During the winter plants thus stored must be examined, and if the soil is "dust-dry," or "killing-dry," water sparingly.—*American Agriculturist for December.*



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon the address label.

SANDY STRAWBERRIES.—The *Revue Horticole* recommends that, when it is desirable to free the berries from sand, they be gently bounced in a piece of damp muslin. By this means the sand will be left clinging to the muslin and the delicacy of the fruit will not be impaired.

THE CONCORD GRAPE is holding its own wonderfully this year, when compared with what are termed "fancy" varieties. It just now (Oct. 9) brings 2¾ cents in Toronto when Salem and Niagara, etc., bring only 3¾ to 4 cents and it seems to have an upward tending, the writer having to-day made a sale of 500 lbs. at 3 cents. When its prodigious fruitfulness is taken into consideration we know of no black grape that can take its place for profit. We have this year gathered five tons of Concords off about one acre, and this judging from the yield of other vineyards, is nothing unusual.

EARLY APPLES.—It has been the custom with many Horticultural writers to say that the fruit grower should avoid planting summer and fall apples. Now this advice may do well for the farmer, who has no time to market summer apples as they should be marketed; but the professional fruit grower who gives his whole time to the handling of fruit will find that the early apples are quite as profitable as the winter varieties. Much of course depends upon the proximity to the market or to an express office, and upon the train connections. But we, at Maplehurst, have found summer and fall apples of certain fancy kinds always profitable, if properly handled. They need to be gathered and packed a few at a time, and graded into extras and seconds, just the same as peaches are handled. Graded in this way and put in small parcels, there is a ready sale for them at paying prices.

SUCCESS IN PEACH GROWING.—Mr. J. H Hale, of Massachusetts seem to have had remarkable success in peach growing, in spite of many previous discouragements. He stated before the Nurserymen's Association, his orchard of fifty acres had yielded him last year 17,000 baskets, and he had received for them the sum of $25.000. Surely this is a satisfactory income from fifty acres in one season. His care in grading was an important factor in getting him the best prices. He employs women of taste and judgment who pack all first quality fruit in new baskets made of white poplar wood, and great pains is taken that nothing goes into this grade, except very large and perfect specimens. He then labels the basket with the quality, and a guarantee that it contains but one grade throughout. As a result, he states he can get a dollar a basket more than those people who place the best on top and the poorer grade below. The best he sold wholesale at from $2.50 to $3.50 per basket, and the second grade $1.65 to $2.25.

GROWING FILBERTS.

THERE are, no doubt, many lines of profitable horticulture that have never yet been followed to any extent in Ontario, and if some of those farmers who are groaning over hard times, would open their eyes a little wider, they might see something to there advantage. Nut culture has of late been much

written about in some American journals, and it would seem that the hickory nut, the walnut and the chestnut can be grown with greater profit in some places than fruits. Of course the length of time required for the trees to reach a profitable bearing age is the great obstacle, but are there not acres of land on almost every farm, that could be easily spared for nut trees, and could not the owner in this way have an additional prospect of ultimate profit.

We are just in receipt of the following letter from Mr. E. Wardroper, Pelee Island, who has evidently had good success in raising the filbert, or hazel nut, in that section.

"SIR,—I forward you by this mail a can of nuts, called the Kentish Cob Nut. The seeds were sent out from England, and were planted years ago. We have all sizes, that bear regularly. They are not injured by frost, the cold here seldom going more than ten or fifteen degrees below zero. They are easily propagated either from seeds or suckers."

The nuts are a fine sample, and surely would be a source of great profit, if grown on a large scale for market.

There are in Canada, two varieties of the Hazel-nut, which are natives, viz: Corylus Americana, and C. rostrata, but neither of these seem to fruit freely enough to be very profitable and the nuts are small. We should be pleased to hear further from our correspondent as to average yield per tree, etc.

Question Drawer

QUINCES FOR THE ORCHARD.

98. SIR,—I am thinking of planting out about five acres of quinces; I have been told that the seedling quinces used by nurserymen for budding bear very good fruit. They are much cheaper than other varieties, being offered me for $15.00 per thousand.—GEO. J. JONES, *Ruthven, Ont.*

We would not advise our correspondent to buy the *Angers* quince stock, which nurserymen use for budding dwarf pears upon, to plant in an orchard for fruit bearing. True, it is a productive variety, and the fruit is a good keeper, but it is small and it is not as good a cooker, as good quality, nor as fine looking as some other varietes. No doubt it could be grown with profit, just as an inferior variety of grape or apple, but we think it always pays to grow only the best, especially since so many quinces are now coming into our markets.

We have grown the *Orange Quince* for market for many years and find it a most satisfactory variety. It is large, roundish, and of a bright golden yellow color, and very productive. There is a seedling of the Orange that is a little larger, and in other respects very similar, called *Rea's Seedling*. The *Champion* is a newer variety, and one which has commended itself to us as being larger than the Orange, and equally good in quality. It appears to be very productive also and the fruit is a longer keeper. These are the best tested varieties of quinces, and in a large plantation, it might be well to have a selection of each.

WOOD ASHES FOR SCAB.

99. SIR,—Do you think that wood ashes are a good preventive of the apple scab? My Fameuse used to be badly affected by it, but since I applied wood ashes not ten per cent are affected.—W. H. W.

Wood ashes are an excellent fertilizer for the apple tree, and will cause a healthy growth of both wood and fruit, and in this way may help somewhat in enabling the tree to resist the fungus, but it can have no direct action as a preventive of the scab in any other way. We have tried them faithfully on the same variety, year after year, and the fruit is still as badly scabbed as ever. Our hopes are now directed to the copper solutions, as the most probable means of securing clean fruit.

THE ERIE BLACKBERRY.

100. SIR,—Is the Erie blackberry hardy and productive?—A. S. CROSBY, *Compton Que.*

We cannot answer for the hardiness of the Erie for the province of Quebec, but perhaps some of our readers in that province

may be able to reply through these columns. As grown here, in Southern Ontario, it proves itself a valuable kind, bearing very abundantly; the fruit is almost as large as the Kittatinny, only shorter and rounder. No doubt you can succeed with it by winter protection.

THE BUBACH STRAWBERRY.

101. SIR,—Where can I get the Bubach strawberry? Is it a staminate variety? —A.S.C.

The Bubach is now so well disseminated that you can get it from almost any nurseryman. It is a pistillate variety.

WINDBREAK.

102. What is the best windbreak, so far as hardiness, looks, etc. is concerned, for a small fruit plantation?—A S.C.

We know of nothing so satisfactory as the Norway Spruce for Ontario, but, if this does not succeed well with you, try some of your native evergreens such as the White Spruce, which, although it is a slower grower than the Norway, is hardier and lives to a greater age. Our native White Pine and our Arbor Vitæ are suitable trees for windbreaks, but are of slow growth.

BEST NURSERIES.

103. Please give me the names of the leading nurseries in the Dominion.—A.S.C.

We must refer our readers to our advertising columns for such information as this.

PROTECTION OF YOUNG APPLE TREES.

104. SIR,—Should young apple trees be earthed up in autumn, and would it be advisable to place evergreen boughs around them?—S. H. PURDY, *Cumberland, N.S.*

It is a very wise plan to heap up a mound of earth about young apple trees in the fall, packing it firmly, both as a protection of the roots from the frost and of the stem from the mice. Great care should be taken to use only fine mould, free from lumps and grass, or rubbish of any kind, else the mice will only work among it to the greater mischief. It would be unsafe to use any evergreen boughs in a place where there are any mice about.

SHALLOW PLANTING OF TREES.

105. SIR,—I planted trees of the King and Ribstone this fall, and wish to give them a fair trial. In order to give drainage and depth of soil, I ridged up the land and set the trees nearly level with the surface. I then mulched them with wheat straw, and manured them in drills for potatoes. Do you approve of my method?—S. H. P.

Your plan of planting on ridges, so as to keep the trees well up from the wet, is a excellent plan in damp soils. Indeed more trees are injured, generally, by planting too deep than too shallow. One of the best orchards at Maplehurst is planted in the manner you describe.

HARDINESS OF THE KING AND RIBSTON.

106. SIR,—Are these varieties too tender to plant north of the Cobequid mountains in Nova Scotia?—S. H. P.

Would some of our Nova Scotia readers please reply?

A GOOD BUDDER.

107. SIR,—Can you inform me where I can get the services of a good budder?—G. J. J.

It is not easy to secure a good budder just when he is wanted. The best way is to learn the art yourself. The method will be described in this journal, at the proper time, if our readers desire it.

GROWING QUINCE TREES.

108. SIR,—Will quinces grow well from cuttings?—G. J. J.

This is the usual method of propagating the quince, because cuttings of it grow with so little trouble. Suckers with small roots just starting are the surest to grow, and in order to induce these, nurserymen usually set a lot of quince bushes quite deeply, and cut them well back, as stools for propagating from.

ROOT GRAFTING PEARS.

109. SIR,—Do pears do as well root-grafted as budded?—G. J. JONES, *Ruthven, Ont.*

There is little to choose between root-

grafting and budding for the pear tree, so far as the health of the trees is concerned, providing the grafting is done upon whole roots, and the stock is healthy. But many nurserymen prefer raising pear trees by budding, as being more expeditious. Plum trees may also be raised either by root-grafting or by budding. If properly done and cared for you ought to succeed fairly well with the former method; but, as a rule, the best success with the plum is attained by budding. The pits should be planted as soon as gathered, and planted about an inch and a half deep in broad drill. At one year old they are taken up and the tap-roots shortened, and those which are of a suitable size planted in the nursery rows ready for budding the following summer. The great point to observe is, to do the work as early in the season as the buds are sufficiently well developed, say about the middle of July, or earlier, if possible.

Open Letters

THE VENTILATED BARREL.

SIR,—I learn from Mr. A. McD. Allen, that fruit shipped in the ventilated barrel was cool and in good condition when opened on the 10th day after receipt; while similar fruit in ordinary barrels was very hot and was, in centre of barrel, more or less spoiled, opened on 5th day after receipt.—JOSEPH WILLIAMS, *Goderich*.

LONDON APPLE DELIVERY.

SIR,—We beg to advise you that we have arranged to make delivery of apples for London, *via* Thameshaven, if desired, where they will be discharged and forwarded by rail to the Commercial Road Station, London, and delivered at any warehouse within a radius of two miles therefrom, at an additional rate of 8-6 stg. per 2,240 lbs, delivery to be taken from the railway station within seven days after arrival; after that regular tariff rates will be charged; or delivery will be made at Covent Garden, London, at an additional rate of 9-6 stg. per 2,240 lbs.

Through bills of lading will be granted by both the railways, including either of the abovd delivery clauses.

This arrangement will be found of great benefit by exporters, giving them greater facilities for distributing, and equal advantages at lower rates than if shipments are made *via* Liverpool, besides saving considable time in delivery over that required from the regular London docks.—ROBERT REFORD & Co., *Montreal*.

Our Markets

NEW YORK CITY.

October 27, 1890.

With clear colder weather at the opening of the season, and a general light supply of fruits (especially apples and grapes) there is every encouragement now, at the lateness of the season, to expect a general advance in prices. Selling to-day as follows: *Apples*—Choice Greenings, $4.00 per bbl.; prime, $3.50; Spitz, Snow, Jonathan and Ben Davis, $4.00 to $4.50 per bbl.; some fancy marks, $5.00 per bbl.; Baldwins, $3.00 to $3.50 per bbl.; Spies, $2.50 to 3.00 per bbl.; windfalls, $2.00 to $2.20 per bbl.; *Grapes*—Concords, 3½ to 5c.; Delawares, 3 to 6c.; Catawbas, 4 to 5c.; Niagaras, 4 to 6c. *Pears*—Beurre, Box, Clairgean, $3.00 to $3.50 per keg; Seckle, $3 00 to $5.00; Duchess and De Anjou, $2 50 to $3.00. *Quinces*—$6.00 to $8.00 per bbl. *Evaporated apples*—13 to 15 cts.; sun-dried, 9 to 11 cts. *Nuts*—Chestnuts, $3.00 to $4.50 per bush.; hickory, $2.00 to $2.20.

BUFFALO.

October 24, 1890.

Pears—Duchess, No. 1, $5.00 to $5.50 per bbl.; No. 2, $3.00 to $4.00 per bbl.; No. 1, in kegs, $2.25 to $2.50; No. 2, in kegs, $1.50 to $1.75; peck baskets, 50 to 65 cts.; other varieties, $2.50 to $3.50 per bbl. *Quinces*—Choice, $4.50 to $5.00 per bbl.; No. 2, $2.00 to $3.00 per bbl.; small and inferior do, $1.00 to $2.00 per bbl.; per basket, 40 to 50 cts. *Grapes*—Concords, 25 to 26 cts. per 9-lb basket; Concord, 14 to 15 cts. per 5-lb basket; Niagaras, 35 to 37 cts. per 9-lb basket; Niagaras, 18 to 20 cts. per 5-lb basket; Delawares, 30 to 35 cts. per 9-lb basket

Delawares, 15 to 17 cts. per 5-lb basket; Other varieties, 13 to 18 cts. per small basket. *Apples*—Choice to fancy, $4.00 to $4.50 per bbl.; fair to good, $3.50 to $3.75 per bbl.; ordinary, $2.50 to $3.00 per bbl.; small and inferior, $1.50 to $2.00.

PHILADELPHIA.

October 18, 1890.

Apples are in light supplies, and desirable grades are particularly scarce and wanted at top quotations:—Kings, Belleflowers, Jonathans, etc., fancy, per bbl, $4.25 to$ 4.50; Ben Davis, Baldwins, Greenings, 20 oz., etc., per bbl., $3.50 to $3,75; Canada mixed cars, choice to fancy, per bbl., $4.25 to $4.50; Michigan, mixed cars, choice to fancy, per bbl,, $3.75 to $4.00; Kansas and Missouri, mixed cars, choice to fancy, per bbl, $3,50 to $3.75. If margin offers, we advise *heavy shipments* of desirable stock only, because the *outlook* for such is highly *favorable.*

MONTREAL.

October 28, 1890.

The market remains in a very lifeless condition and the aggregate of trade is unusally small for the season. *Apples* are quiet with sales of winter stock running from $3 75 to $4.00 per bbl.; fall apples, $2.75 to $3.25 per bbl.; seconds, and the markets is full of them, dull, $2.00 to $2.25 per bbl. *Pears*—Very, very dull; sales $5.00 to $10.00 per bbl., as to quality; 50 cts. to $1.00 per basket. *Grapes*—Domestic, stock is almost done and is now in good demand, prices running from 3 to 3½ cts. bulk. Foreign green fruit is now selling much better, the bulk of trade being in oranges, lemons and grapes.

GUELPH.

October 24, 1890.

Grapes—Concord, 2 to 3 cts. per lb; Niagara, 3½ to 4½ cts. per lb.; Rogers, 3 to 4 cts. per lb. *Pears*—40 to 75 cts. per 12-qt. basket. *Quinces*—40 to 75 cts. per 12-qt basket. *Apples*—25 to 40 cts. per 12-qt. basket; $2.50 to 3.00 per bbl. *Cauliflower*—40 cts. to $1.00 per dozen. *Cabbage*—30 to 50 cts. per dozen. *Celery*—40 to 50 cts. per dozen. *Citron*—40 to 50 cts. per dozen. *Onions*—Yellow or red, $2 to $2.25 per bbl. *Potatoes*—40 to 45 cts. per bushel. *Cranberries*—Canadian, $8.50 per bbl.; Cape Cod, $11.00 per bbl. The demand for grapes is falling off considerable, owing to cool weather and the quality being poorer than they were some time ago.

TORONTO.

October 24, 1890.

Grapes—Concord, 2½ to 2¾ cts. per lb.; Delaware, 2¾ to 3 cts. per lb.; Rogers, 2¾ to 3 to 3½ cts. per lb.; Niagara, 3 to 3¼ to 3½ cts. per lb. Grape market shows a firmer feeling, and if receipts the coming week do not exceed the demand we look for an advance in prices. *Pears*—De Anjou and Clairgean, when marketed in good condition, are selling at 65 to 75 cts. per basket, or $6.50 to $7.00 per bbl; Duchess 60 to 70 cts. per basket; common varieties from 25 to 50 cts. per basket, according to quality and condition. *Apples*—On fall varieties, unless of very fine kinds and quality, market is dull, only fancy re-shipping kinds being in demand. Winter fruit is quiet and most receipts are being put in store for future shipment, as there is very little enquiry by the local trade. We quote fall fruit: Snows, when clean bright fruit, $2.00 to $2.25 to $2.50 per bbl., anything inferior in quality is hard to dispose of at any price; Culverts, Jennettings, etc., $2.25 to $2.50 per bbl.; St. Lawrence are about out of market; Blenheim Pippins, Ribston Pippins, Twenty Ounce and other fancy fall varieties, $2.75 to $3.00 per bbl. *Quinces* are in light supply and demand; choice clean bright fruit selling at 75 to 85 cts. per basket. Inferior, undersized, poor colored fruit is hard to sell at any price. *Crab apples* have been in good demand until the last three or four days, and now there is scarcely any enquiry; offering at $3.00 to $3.25 to $3.50 per bbl. according to quality to-day. Receipts are rather in excess of demand.

LONDON, ENG.

October 4, 1890.

American and Canadian apples are now coming forward in small quantities, and good brands realize good prices. We quote; Baldwins, 18s. to 25s. per bbl.; Greenings, 17s. 6d. to 23s. 6d. per bbl.; Kings, 27s. to 31s. per bbl. Market now bare of plums, and as the bulk of the Continental apples has been cleared, enhanced prices for good American and Canadian stock are expected. Immediate shipment of good sound parcels of apples advised.

GLASGOW, SCOT.

October 6, 1890.

Choice Kings as high as 36s. or $8.75; choice Baldwins as high as 21s. or $5.10, to 24s. or $5.80. Ordinary qualities at proportionately less prices.

October 20, 1890.

Northern Spies, 17s. (or $4.12) to 19s. (or $4.60).

LIVERPOOL, ENG.

October 20, 1890.

Baldwins, 18s. (or $4 37) to 22s. (or $5.53).

NOTE.—Markets reported for us by G. S. Palmer, 166 Reade St., New York City; Pancoast & Griffeths, Philadelphia; I. C. Houghton, Liverpool; Messrs. Jos. Lindsay, Glasgow; H. Walker & Son, Guelph; McWilliam & Everist, Toronto; Vipond, McBride & Co., Montreal; I. B. Cairncross, agent, London; Chas. Richardson, Buffalo.



SNOWBALL.

THE

Canadian Horticulturist.

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THE SNOWBALL TREE.

TO many known as the Guelder Rose, this excellent flowering shrub has long held its place as one of the most desirable on the list. Of easy culture and great hardiness, it may be planted on almost any soil with assurance of success. Sometimes in rich soil it grows very rank, reaching a height of ten or twelve feet, and such a bush when covered with its fine, large, globular cymes of flowers, resembling snowballs, is, indeed, one of the prettiest of its season.

Botanically, the Snowball tree belongs to the honeysuckle family, to which we are also indebted for the climbing and bush honeysuckles, the Snowberry and the Elders, all of which are prized for ornamental purposes. It is known to students as *Viburnum opulis stirilis*, the latter word describing this special variety, of which the flowers are sterile. It comes to us from the gardens of Europe, but is really a form of our native *Viburnum opulus* or *Cranberry tree*. This latter is also a very ornamental, hardy shrub for Canadian lawns. In flower it is not conspicuous, but its bright, red berries hanging in clusters throughout the whole winter, make it a shrub that should be included in the smallest collection.

Besides these, we have five or six other native Viburnums, and amongst them is the Downy Arrow Wood (V. Pubescens), a low bush with showy

flowers and dark purple fruit, which grows in rocky places; and the Hobble bush, (V. Lantanoides), a straggling bush with handsome flowers, found in moist woods.

Our colored plate is an excellent representation of V. opulus stirilis, and will, we hope, influence many of our readers, in planting their lawns, to choose this as one of the shrubs for filling in appropriate spaces.

Our readers will notice that this frontispiece is done in a new process, combining the photograph and the chromo, and we hope, in this way, to be able to embellish our journal with some very beautiful pictures during the coming year.

CONDITIONS OF SUCCESS IN FRUIT GROWING.

THE question is frequently asked whether fruit growing is a profitable industry. The only correct answer is that it depends in some measure on circumstances, but mainly on the cultivator. Like the questions we often see discussed in the publications of the day, "is life worth living?" "is marriage a failure?" it is or is not, just as we make it.

A cause of much of the want of success in the growing of fruit is to be traced to the fact that it has been regarded as a secondary matter, the thought and care being given to other crops. Hence much of the fruit sent to market has been barely good, much more has been poor, and but very little truly perfect. This method needs to be reversed. Fruit growing should be the main thing, all else secondary and subsidiary. In short, the fruit grower should be in love with his work. As an eminent writer said of the successful rose grower, "he must have the tenderness, the thoughtfulness, the reverence, the watchfulness of love."

Love like this will lead him to a careful study of everything affecting his favorite pursuit. Soils are not all equally adapted to the growing of fruits; nor even to all varieties of the same fruit. The quality of the fruit is materially influenced by the character of the soil. Fertilizers are not judiciously used unless adapted to the accomplishment of the end desired. Some fertilizers tend specially to the increase of plant growth, others to affect the size and quality of the fruit. There are also insect foes and insect friends, the former to be destroyed, the latter to be preserved. This necessitates an acquaintance with both. These are but a part of the subjects requiring thoughtful attention, but they may suffice to show the exceeding breadth of the knowledge that the fruit grower must make tributary to his ends.

In the pruning and training will be found ample scope for the exercise of all the thoughtfulness and watchfulness of which he is possessed, and of a discerning judgment formed thereon. The habit of growth differs much in even different varieties of the same fruit. The amount of fruit that each can bring to perfection

will vary by reason of age and by reason of constitutional differences. These and other matters will be elements in the problem, each of which is to be carefully weighed.

The likes and dislikes of purchasers must be considered. As a rule the fruit that combines excellent flavor with an attractive appearance holds a commanding position in all markets. Many purchase fruits with reference to its quality as an ornament to the table as well as its ability to gratify the palate. Nor is the manner in which it is put up for market to be overlooked. A neat package enhances the appearance of beautiful fruit.

These things are sufficient to show that the successful fruit grower must have his heart in his work, and that the growing of fruit for market should never be secondary to some other business. Only perfect samples should satisfy the grower, and none other should be allowed to go to market. The poor fruit serves only to break the market, lessen the price obtainable for even superior fruit, and lessen the profits of the producer.

St. Catharines, Ont. D. W. BEADLE.

WHAT I SAW AND HEARD IN A TWO WEEKS' VISIT IN OCTOBER AMONG PROMINENT STRAWBERRY GROWERS IN OHIO.

MY first stopping place was at Mr. M. Crawford's, where I received a very cordial welcome from his wife and himself. After dinner he took me through his garden where I saw the strawberry plants in perfection, from the best of the old varieties to the latest of the new. His gladiolus bed made a grand display, especially some of his own seedlings. He had two men every day digging and topping the bulbs. He expects to have one hundred bushels for sale.

On October 5th my good friend Crawford drove me over to Mr. F. B. Ferry's, near Hudson, Ohio, a well-known writer to the horticultural press of the United States, also author of "How to Grow Strawberries." He surmised the object of our visit, and at once took us to his garden.

We first came to his red and black raspberry bed, which showed good care and was well kept with a heavy mulch of straw, renewed every year. The half acre of strawberries we found in good order, with paths between the beds sixteen inches wide, and one of his men on his knees with a basket and trowel, thinning the plants in the beds until they stood about six inches apart. By this thinning he believes he gets as much fruit and larger berries than by letting the old and weak plants remain.

Mr. Ferry told me that from the half acre the cash sales were $237. "We have had," he said, "a very large home market for berries. We certainly ate,

canned, jammed, and gave away $50 worth, probably more, as some days I know by actual measurement that we ate three pecks!"

We might safely say that the total value of the crop at wholesale prices was $287. No attempt was made to get the last dollar out of them, or the receipts might have been pushed up to $300.

He said, "I have not figured up the exact yield in bushels, but it was over 100, or considerable above the rate of 200 bushels per acre. We sold to dealers only, or to families who wanted at least half a bushel." He fixed the price of his best selected berries at $3.20 a bushel, and of the small ones for canning at $2, and held it there without any regard to how low others were selling.

His largest picking in one day was about thirteen bushels, which sold for $36.55. It took from four to six good pickers to keep right up. Mr. Ferry did the marketing; he examined all the berries himself and could recommend them.

The varieties Mr. Ferry grows are Sterling, Haverland and Bubach's No. 5. These are pistillate varieties, and to fertilize them he plants, in alternate rows, Jessie, Cumberland, Gandy and Downing. You will see all these varieties are large, beautiful berries, except the Downing, which no doubt he plants for its value as a fertilizer.

Mr. Ferry has two rows of Haverland, or about one-sixteenth of an acre in the two rows. He usually picks two bushels a day, all first-class berries, at $3.20 per bush. This I know. Mr. Ferry says that the sixteenth of an acre brought him at the *rate of $1,000 per acre!*

He said he took a sample of his large berries to an old dealer in the city, and he said, "You may talk of quality to the people to the end of the world, but every one will buy that which pleases the eye in preference to that which has excellence of quality."

Granton, Ont. JOHN LITTLE.

GRAPES IN MUSKOKA.

IN answer to T. B., at your request (Question 84), in October HORTICULTURIST, I beg to say that in 1888, from the 18th of September to the 3rd of October, I gathered from my garden 183 lbs. of ripe grapes, all of which not used by my family were sold at an average of ten cents a pound. On the 5th of October, fearing frost, the balance of the fruit, ripe and unripe, was gathered, weighing, exclusive of the above, 249 lbs., total 432 lbs. This I consider a successful season.

I enclose a list by which T. B. can see when, in a good season, he might expect to pick ripe grapes in Muskoka; also another list showing the product of each of the principal vines at the final gathering, by which T. B can see which sort gives the greatest weight.

Grapes, ripe and unripe, picked for wine, showing the product of each vine, in addition to a share of the 183 pounds picked indiscriminately as the bunches ripened.

DATE.	NAME OF VINE.	POUNDS OFF VINE.	DATE	NAME OF VINE.	POUNDS OFF VINE.
1888.			1888.		
Oct. 5	No. 2 Lindley.....	47	Oct. 5	No. 22 Salem.....	10½
"	" 4 "	34	"	F.G.A., old vine, Burnett..	11
"	" 6 "	34	"	Slips of F.G.A.2 young " ..	16
"	" 11 Salem	10½	"	F.G.A., Eumelan..... ..	7½
"	" 12 "	7½	"	Mixed "	4
"	" 1&13 "	11	"	End of house, Burnett....	9
"	" 20 "	15	"	3 vines front of house, mixed	21
"	" 21 "	11			
				Total.....	249

Time of gathering ripe grapes:

Sept. 18th.....	1 lb.	Sept. 27th.....	25 lbs.
" 22nd.....	3 "	Oct. 1st.....	68 "
" 23rd.....	12 "	" 3rd.....	41 "
" 25th.....	27 "		
" 26th.....	6 "	Total.....	183 lbs.

The Lindley is my favorite, from its many good qualities; vine hardy, a very vigorous grower and good bearer; Salem, a little larger berry, higher flavor, but not so fruitful; Burnett, when fully ripe finest flavored grape in the garden, but rather shy in bearing; Moore's Early, first to ripen; Niagara, I have only fruited twice, appears rather late; Worden, my largest black; Moyer and Vergennes not yet fruited. Trusting some of these hints may be useful to T. B.

Lake Rosseau, Muskoka. AMATEUR.

RATIONAL PRUNING OF THE RASPBERRY.

THE raspberry-plant is a sort of compromise between a perennial herb and a shrub. Its stems are woody, but instead of living on from year to year, and bearing an indefinite number of crops like the currant, it lives but about a year and a half, and, like a multitude of other plants, perishes after maturing its seed, while its roots live on indefinitely. Like many of the herbs, the stems make a very rapid growth until they have attained their normal stature, when, in common with their branches, they terminate in a cluster of flowers, followed in due time by the fruit. Such would be the case, at all events, but for the fact that winter usually intervenes before the normal growth is completed, and destroys the terminal bud, leaving the future growth to be made by the axillary buds that have not yet started into vegetation.

This explanation should give us a clue to a rational method of pruning the raspberry (and blackberry as well), which has long been a sort of

mystery to many growers of these delicious fruits. Why prune them at all? There are two reasons, one of which has already been suggested. Winter comes on, at least in our climate, before the growth is completed, and usually destroys more or less of the immature and succulent terminal parts. It is better to remove this distroyed portion, because if left it continues to absorb and transmit by evaporation the sap brought up by the living part of the cane, thus robbing in a measure the fruit and foliage. This pruning would naturally be done in the spring as soon as the buds begin to swell. Earlier than this it would be difficult to decide how much to remove; later, the dead portion would have already wrought a part of its mischief.

The other reason for pruning is suggested chiefly, if not wholly, by the convenience of culture. The canes of the black-cap raspberry (*Rubus occidentalis*) grow to such a length as to greatly interfere with cultivating the plants and gathering the fruit unless they are dwarfed in some way by treatment. By permitting them to grow to their full length, and then cutting them back to a convenient stature, we should remove one-half or more of the fruit buds, and thus materially reduce the crop. We must prune them in such a way that while we keep them down to a size that is convenient for working among them we also preserve the flower-buds. To accomplish this we pinch the terminal shoot at the height of two to two and a half feet. This causes the buds in the axils of the leaves to develop into branches, and instead of a single cane six or eight feet in length we have half a dozen branches two feet or less long.

To the beginner it appears almost absurd to pinch a raspberry cane at the height of two feet. It seems as if the cane has but just commenced to grow, and that to pinch it at that height will prevent it growing taller. But it should be remembered that there are several nodes at the top of the stem that have not attained their full length, and which will continue to elongate for some days after the tip has been removed. A cane pinched at two feet will attain an ultimate height of three feet, which is sufficient.

It has often been recommended to pinch the branches when they have attained the length of a foot from the main cane. The wisdom of this is quite doubtful, at least in regions of severe winters. The effect of it is to cause axillary buds upon the branches to develop into shoots, and this will take place so late in the season that they have not time to make much growth, and, being immature, they are liable to kill back badly during winter. The result is that the buds that should have remained dormant until spring to furnish the flowers for the crop, have been forced into growth in late summer, while the tender buds upon these immature shoots—all that are now left to furnish the crop—have either been killed outright or severely weakened by the winter. It is doubtless, in the majority of cases, better to let the branches from the main cane grow undisturbed until autumn, and then cut them back as far as seems desirable at the spring pruning.

The canes of the red raspberry (*Rubus strigosus*) do not attain such great length as those of the black-cap type, and so do not, as a rule, need pinching in summer. When vigorous growing varieties like the Cuthbert are planted in rich soil the canes sometimes attain an inconvenient height. In such cases they may be pinched like those of the black-caps, but the pinching will tend to stimulate the growth of suckers, an evil which needs no encouragement, because it is apt to be excessive in rich soils even without the pinching. It would probably be wiser to substitute a weaker growing variety, or else to remove the plantation to poorer soil.

The reasons given for pruning the black-cap type of raspberries will apply as well to the blackberry.—*E. S. Goff, in Garden and Forest.*

PERFECT AND IMPERFECT STRAWBERRIES COMPARED.

THOSE varieties of strawberries that produce pollen and berries also are at a disadvantage as compared with those that produce berries only. Division of labor counts here as elsewhere. Give a plant nothing to do but to grow and bear fruit and the work will be better done than if an additional task is imposed. To produce pollen taxes the energies of the plant much more than is commonly supposed. Many growers think it would be desirable to have varieties with perfect blossoms only to save the trouble of planting the two classes. Theory disproves this plan, and careful observations show that, in general, the most prolific sorts are those that have imperfect flowers.

There is more truth in the above now than there was a generation ago, when the Wilson was in its prime.

It should be understood that these statements refer to the leading varieties that are most generally grown. There are some apparent exceptions even with these, and still more if all known varieties are included. Concerning the varieties that are worth considering, the general statements made above will hold good. These generalizations are not only useful in determining the value of varieties in a comparatively short time, but may also serve as guides in future work. Much valuable time has been lost because these principles have been ignored.—*Ohio Experimental Station.*

WINTER WORK FOR THE HORTICULTURIST.

"LOOKING ahead a good way?" Yes; but is not that the way to keep things running smoothly and profitably? How many manufacturers could afford to "shut down" or discharge a large portion or all of their help on the advent of winter, and remain dormant until thawed out by April's sun? But this is what too many horticulturists do. Hauling manure is one of the jobs that are nearly always in order. My own practice in most cases has

been to apply it directly to the land, spreading it from the wagon at all times ; my soil is level. Manure thus applied mulches the soil for several months and the rains of early spring incorporate the liquid portion more thoroughly with the soil. The disadvantages of the plan are an occasional slight loss of fertility, from rains when the ground is frozen, and the latter will not become dry enough for the plow quite as early as if no manure had been spread on it. If the manure is free from grass and weed seeds it may be used to mulch as well as fertilize the strawberry bed with grand results. Pruning of all plants except the grape had better be deferred until late winter or early spring, although the old raspberry and blackberry canes can be removed at any time during the winter ; but one should not cut back the bearing canes until just before the new growth starts, otherwise the spring winds will dry and injure the freshly cut, pithy canes.

A very important job for early winter is to secure all young fruit trees against damage from mice and rabbits. (By the way, ought not fruit growers to ask the repeal of the law prohibiting the hunting of rabbits with ferrets ?) I have protected my trees cheaply and efficiently by banking. Just before the ground freezes make a smooth, conical mound of mellow soil eight or ten inches around the trunk of the tree. A carbolic acid preventive has always proved effective : with one ounce of carbolic acid (crude will answer) mix one gallon of strong soapsuds and dilute with three or four gallons of water ; apply with a swab to the trunk of the tree. Where carefully applied this has stood the severest tests without a failure, although I have never applied it oftener than once in the season. In a wet, open winter it would be safer to repeat the application about midwinter. Of course the horticulturist will secure a full supply of posts, stakes, crates, boxes, etc., for the approaching season and also select and order his trees, plants, seeds, etc., in good time. He should keep as many of his best men as he can find employment for, even if he has to spend a part of his own time in studying and planning or visiting his friends. He may find he has gained even in dollars and cents by so doing, besides the benefit conferred on the hired man and on himself in other ways. He must combine head-work with hand-work. Let him attend his farmers' institutes and county horticultural meetings. If there is none why not organize one ?—*W. W. Farnsworth, in Rural New Yorker.*

STORING FRUITS.

IMPORTANT POINTS TO BE OBSERVED IN PRESERVING FRUITS FOR WINTER USE.

DECAY results from infection by the spores or germs of certain microscopic fungi. These spores are practically omnipresent in the atmosphere, and are deposited upon all objects indiscriminately. Where the conditions happen to be favorable, that is, where the proper amounts of heat and moisture are present, they germinate, producing decay.

A certain degree of heat destroys these spores. This is why our canned fruit is preserved. The can is sealed up while its contents are so hot as to destroy any spores of putrefactive fungi that may have chanced to fall into it while the can was being filled.

PRESERVATIVE PRECAUTIONS.

But how shall we preserve our fresh fruits? These we cannot heat, nor can we preserve them from infection. Long before they are gathered the spores of putrefaction are upon them, and if we wipe them ever so clean, they are liable to be again infected before they have time to leave our hands. We cannot prevent their final decay, but by the exercise of knowledge and judgment we can greatly prolong their sound condition. The correct understanding and application of a few general laws will prove of great practical value to all who handle fruit.

The stage of maturity of the fruit has much to do with its power to resist decay. Fruit in its last stage of ripeness furnishes upon its surface a favorable soil for putrefactive fungi, while that in a less mature condition exerts a certain degree of resistant power. Fruits should be gathered, therefore, before the last stage of ripeness, and placed under conditions that tend to retard the maturing process, that is, in a low temperature, which not only prevents their rapid ripening, but also greatly checks the development of the fungi of decay.

It is of the utmost importance that the skin of the fruit be unbroken. Nature's protection against decay is in most fruits a surface covered with a thin layer of vegetable wax. If we rupture this, the germs have free access to the moist and delicate tissues beneath, which have very little resistant power, and decay quickly results. The preventive in this case, as every one who gathers or packs fruit should know, is *careful handling.*

It is important that the surface of the fruit be kept dry, and this involves more care than many suppose. It is not always enough that the fruit be dry on the surface when gathered or when placed in the storage room.

A MATTER OF TEMPERATURE.

Will it remain dry? This is a question that does not always occur to the fruit man, and because he does not understand the principles involved, his fruit often fails to keep. Much depends upon the relative temperature of the fruit, and of the atmosphere of the storage room at the time the fruit is placed in storage. Suppose a package of warm fruit from the orchard or berry field, where the temperature is 80°, be placed in a cool storage room with a temperature of 45°, what results? A knowledge of the laws of the deposition of dew will tell us that as the fruit cools down to the temperature of the room, the moisture contained in the air between the fruits is likely to become condensed and deposited in a thin layer over the service of the fruit. This is sure to be the case whenever the temperature of the storage room is below the "dew-points" of the external air at the

time. Thus the fruit, however dry its surface may be when placed in storage, is likely to become moistened all over within an hour afterward.

On the other hand, suppose the orchardist stores his apples in an outbuilding until they become so cold that he fears they may freeze before removing them to his cellar, as he is often advised to do. Obviously, the moment the apples come in contact with the warmer and usually moister air of the cellar, a layer of moisture is condensed upon them, and his fruit, though dry enough in the outbuilding, is damp in the cellar.

MELLOW AND MOIST.

This is one reason why fruit taken out of cold storage often decays so promptly. The maturing process has been going on slowly and almost imperceptibly, and the fruit, though entirely sound, is at that condition that invites decay. On being brought from an atmosphere little above the freezing point into the temperature of the market, it is soon moistened all over by condensed water, which supplies the only lacking condition of putrefaction, and decay results almost as if by magic.

A state of dampness is more favorable to decay than one of positive wetness. The housekeeper knows that her clothes are more likely to mildew when they are moist than when they are under water, and every farmer knows that wood kept constantly water-soaked will last much longer than that which is kept in a damp state. So fruit that is so placed that it is kept constantly wet will often keep better than that which is stored in a comparatively dry atmosphere. The practical question is raised, how shall we handle our fruit so as to prevent it from becoming moistened by condensed water? It is not always easy to do this, where we use a cool cellar or storage room, but by taking proper precautions it is generally possible. (1) Gather and pack the fruit, so far as possible, at a time when the atmosphere is dry and cool. (2) Have the fruit as nearly as possible of the temperature of the cellar or storage room at the time it is deposited in it. (3) Keep the cellar or storage room as nearly as possible at a uniform temperature, and always as dry as possible.

The first precaution cannot always be observed. As a hint in observing the second, it is well to store the fruit temporarily in a cool, airy place, as the north side of an outbuilding, until a cool night comes, and then place it in the store room in the morning before the sun has time to warm up the packages. For the third precaution, avoid ventilating the cellar or store room at a time when the outer atmosphere is moist, or when its temperature is much different from that within.—E. S. GOFF, *University of Wisconsin.*

New or Little Known Fruits

THE ONTARIO APPLE :—

SIR,—I have extolled the Ontario as a thrifty grower, early and annual bearer, of fine, large symmetrical, long-keeping apple. The crop on a tree which I gave to a friend in 1880 was gathered yesterday, two barrels and a bushel of very large, finely colored, handsome fruit. It was a great satisfaction to me, confirming my own estimate of it, to see it so highly rated in the January HORTICULTURIST, receiving a value of 39 in a possible 40, higher than any other winter apple, the nearest being Spy and King, 38 each. I should not rate the Ontario so highly here for dessert.—CHARLES E. BROWN, *Yarmouth, N.S.*

SAMPLE APPLES FROM NOVA SCOTIA.—Mr. S. H. Purdy, of Greenville, N.S., sends three sample apples, numbered 1, 2 and 3, asking for names and opinion of size and quality. No. 1 was decayed past identification : No. 2 is a *Haas*, and rather under size. It is a fine fall apple, especially at the north, where its hardiness makes it most desirable. It is at its best in November. No. 3 may be a poorly colored sample of the Bethel of Vermont, for which Mr. Purdy says he planted the tree.

SEEDLING PEARS :—

SIR,—I send you sample pears which are supposed to be seedlings of this place, as the tree was found when about four feet high growing among weeds and brush by the side of a railway. The tree is perfectly healthy.—THOS. BEALL, *Lindsay, Ont.*

These samples were in an over-ripe condition, so that it is impossible to give an accurate description of them. They have remarkable stems, two inches in length, a golden-colored skin with a blushed cheek, and fine grained flesh. They are apparently of good quality. Size below medium. Season, September.

JOHNSON'S SEEDLING APPLE :—

SIR,—I mail you an apple raised at L'Orignal. The tree is hardy and bears pretty good crops.—CHARLES HARDISTY, *Clarence, Ont.*

This might be a desirable fall cooking apple for the north. Description—Size, medium ; form, regular, roundish ; stem set in a small contracted cavity ; calyx partially closed in a shallow-plated basin ; skin, clean bright yellow with a handsome blushed cheek, and sprinkled with numerous small, dark-brown dots ; flesh tender, juicy, with a rich aromatic flavor, somewhat resembling that of the Fall Pippin. Very good. Season, November.

WILLSON'S SEEDLING APPLE :

SIR,—I send you samples of a seedling apple from a tree growing by the kitchen door in Mr. B. Willson's yard, Wingham. It has grown up from seed accidentally dropped some twelve years ago The tree has a rather compact, bushy head, and is apparently a healthy, vigorous grower. It bore three or four apples last year for the first time. It is well worth your notice.—J. A. MORTON, *Wingham.*

This is a magnificent fall apple. Its great size and fine color would make it a

profitable apple for putting up in small cases for a special export trade, providing it bears out its present promise. It may be described as follows:

Size, very large; form, conical; skin, yellowish, spattered and shaded with very bright red on the sunny side; stem, set in a moderately deep, even basin; flesh, yellowish white, somewhat inclined to water core, tender and of a pleasant flavor. A good cooking apple. Season, October.

SEEDLING APPLES:—

SIR,—I send you some seedling apples grown in this vicinity:—No. 1 is a seedling of fall pippin. Fruited the eighth year. Came into full bearing the third year after. It fruits every year. Is a good cooker and keeps until May or June. Becomes a very bright yellow in the winter. No. 2 bears very early and heavily. A good cooker and keeps till February. No. 3 came into bearing early. Bears a good crop every year Keeps till February. No. 4 bore fruit crop sixth year from seed. Keeps all winter, becoming yellow.—THOS. BEALL, *Lindsay*.

None of these apples seem to call for a description, unless possibly No. 1. Nos. 2, 3 and 4 are only suitable for cooking, and for this No. 4 is too small, and 2 and 3 are inferior to varieties already in cultivation.

No. 1 is under medium size, conical, with bright, clean golden-colored skin, stem slender, half-inch in length, set in a deep, narrow cavity, calyx closed in a medium sized wrinkled basin, flesh creamy white of good quality and pleasant aromatic flavor. Probably a good winter dessert apple.

THAT WEAVER PLUM.—In your August number I advised my northern friends to try one Weaver plum at least—stating that it had fruited with me last year for the first and it was the first "meaty greenish plum" that I had been able to grow. I had only three specimens last season which grew inside, near the ground and in a very shady place. This season I had them on the tree in more exposed positions, and to my great surprise they were almost red in color, owing to the action of the sun and light. I then looked it up in Elwanger and Barry's Catalogue, and see that it is classed as a *red plum.* Nevertheless it is of an entirely different character from an ordinary red plum, being superior to the old varieties grown here in every way. It is not entirely red, is firm and meaty in flesh, and of excellent quality. I still advise my northern friends to try a tree.

Renfrew. A. A. WRIGHT.

MCMILLAN'S SEEDLING APPLE.—This apple, sent us by Mr. J. P. Cockburn, Gravenhurst, originated in the county of Stormont, latitude nearly 46, and is the product of a seedling tree twenty years planted. It evidently has the merit of hardiness, and it is for a list of hardy apples that we can commend that we are at present looking. It is a fine looking fall apple, and would be an ornament to any table for the dessert dish. One great point in its favor, for these days, is that it does not appear to have the least tendency to spot, a grievous fault with many of our otherwise excellent dessert apples. The apple may be described as follows; Size, medium; form, oblong: skin, yellowish white, almost completely blotched and dashed with bright red, much deeper on the sunny side; stem, slender, three-

quarters of an inch in length, set in a deep, narrow cavity; calyx closed in a very small, wrinkled basin; core open and seeds free; flesh, white tinged with pink, prominently marked toward the apex, tender, mellow, fine grained, not very juicy, with a good flavor, somewhat of the Fameuse character; season, October Promising.

HARDY APPLES FOR THE COLD NORTH.—Dr. Hoskins, of Newport, Vermont, very kindly sends us samples of the *Bethel* (of Vermont), *Scott's Winter*, *Iowa Russet*, and the *McMahon* is *White*. We have only a remark or two to make on these apples, as they are known varieties.

The BETHEL is a strikingly beautiful apple, of fine large size, even form, and mostly covered with dark red, and blotches of very dark red. It was recommended by Dr. Hoskins on page 220 of Volume XI. as one of the best winter apples for the cold north. If this is an average sample, we shall want no Russians to cover its season. SCOTT'S WINTER, another of the list of winter apples recommended for the cold north, is somewhat similar in general appearance to the last, but much smaller, being below medium. The experience of some of our Quebec fruit growers is highly favorable to this apple. The IOWA RUSSET has not so much in the way of beauty to commend it, being a dull green color, partially russeted; but it is a large apple, and might be profitable. MCMAHON'S WHITE, one of the *fall* varieties recommended for the cold north, is a fine large, yellowish apple, which would market well. It originated in Wisconsin, where it has stood a temperature of 40° below zero, and is spoken of as being head and shoulders above any other apple. It usually has a red cheek, which adds much to its good appearance

THE ARKANSAS BEAUTY is the name of a fine new apple shown at the meeting of the American Pomological Society in Boston in 1887. It is a large crimson-colored winter apple of much promise.

THE BRIGDON PEACH.—This peach originated in Cayuga county, N.Y., and is being grown quite extensively on the shores of Seneca lake. It gave a very remunerative crop last season. The tree is hardy and the fruit large, remarkably handsome and more productive than the Early Crawford. The foliage is large, green, glossy and peculiar. The flesh of the fruit is yellow, very rich and juicy, with a pleasant flavor; color of fruit, deep orange-red, becoming dark red on the exposed side. It is attractive and has been universally admired wherever exhibited and has taken the first premium at the Cayuga County Fair for three years. Its season is the middle of September and it is a freestone.—PROF. CHURCHILL, *N.Y., Experimental Station.*

✳ Flowers ✳

BERRY-BEARING PLANTS FOR FALL DECORATIVE PURPOSES.



R. ROBERT VERTEL, of Connecticut, in reply to a query as to the best berry-bearing plants for fall decorative purposes, gave the following list:—

Ardisia crenata, a charming house plant that should be more generally cultivated. The plants usually fruit when one year old, bearing clusters of brilliant scarlet berries during the winter. These remain for a long time, presenting an elegant appearance. The flowers are small and white. Light fibrous loam containing peat and sand should be given them, also good drainage. Propagate from seed.

Ampelopsis tricolor is a splendid basket plant, having leaves variegated with white, pink and green. During the fall it is covered with bluish purple berries, which add greatly to its beauty.

Among the Peppers are several of the finest plants for decorative purposes. Capsicum Little Gem is a very dwarf variety, covered with small erect scarlet pods. Prince of Wales fruits very freely, bearing drooping, bright yellow pods. Perhaps the best, however, is Celestial, as it may be had for the holidays, and it is extremely ornamental when covered with upright pods, which are of all shades of green, yellow and red, being borne very profusely.

Bittersweet (*Celastrus scandens*) is a well-known climbing plant, that can be made useful in many situations, being very hardy. In the fall and during the winter, when full of its brilliant orange and scarlet fruit, it is exceedingly handsome. The berries can be used for many decorative purposes, as they do not drop for a long time after being gathered.

The Burning Bush (*Euonymus Americanus*) is a handsome shrub, having somewhat inconspicuous purplish flowers, and bearing a very showy scarlet fruit for some time, rendering it thus of much value for decorating.

Of the Holly (*Ilex*) there are many species and varieties which are very desirable for ornamental purposes, as may be readily understood when the immense quantities that are used for the holidays are recalled.

Mistletoe (*Viscum*) is of value only because of association with special occasions, there being but little beauty about it.

Jerusalem Cherry (*Solanum pseudo-capsicum*) produces a large crop of scarlet cherry-like fruit from early in the fall until after the holidays. One-year-old, seed-

grown plants are more fruitful than older ones, or when grown from cuttings. Sow in the spring for fall bloom, grown in fair-sized pots in the summer, housing them in September. The soil may be of any kind that is fairly good.—*From Proceedings of Society of American Florists.*

PLANTING POND LILIES.

SIR:—I will describe to you briefly my method of planting these lilies. Take an oil cask, cut it in two in the middle, place six or eight inches of clay loam in the bottom and two or three inches of lighter muck, or mud, on top of this. Plant the roots firmly, leaving the buds partially exposed. Set the tub in the centre of the lawn where it can get plenty of sun, with the top about three inches below the surface of the ground, sloping the turf so as to just cover the tub. Then fill up with water. I throw in two or three inches of leaves to form protection something like that which nature gives, then before it freezes hard cover with boards and straw.

My plan would be to make a box larger than the top, eight or ten inches deep, paint it, fill with straw and invert it over the cover of the tub so that it would not be unsightly. Uncover early in the spring, and the leaves will naturally start and the lilies begin to flower in the month of June. I usually plant six or eight buds of the *Nymphaea Odorata.*

South Haven, Mich., Nov. 1890. L. B. RICE.

A ROSARY.

SIR,—I am desirous of obtaining some information as to the laying out of a rose garden. Can you make any suggestions or refer me to any work upon the subject, giving illustrations? —W. R. WADSWORTH, *London, Ont.*

YOU can get some information upon this subject from H. B. Ellwanger's book on "The Rose," also from Shirly Hibbard's work entitled "The Amateur's Rose Book."

In the first place, in having a rosary, it is important to carefully choose the location. It should not be in a prominent part of the grounds, but partially concealed, both from the windows of the house and from the approach, because at certain seasons of the year there is nothing attractive about a collection of ill-shaped bushes having neither foliage nor leaves. If a very elaborate rosary is to be formed, it should be enclosed all around with a hedge of Arbor Vitæ, Barberry or some other shrubbery, which will give them ample protection. Such a rosary is described in Mr. Hibbard's work, having a large summer-house in the centre, around which the various rose-beds circle with numerous walks between, and

covering an acre of ground. There are very few in Canada who would think of laying out a rosary on such a grand scale as this; indeed, for the amateur rose grower, the simpler the plan the better. A simple style, well adapted to the ordinary gardens, is to lay out two broad borders, one on either side of a gravel or a close shaven grass walk. These borders may vary in width according to taste, but, in planting, care should be had that the dwarf-growing varieties are planted nearest to the centre walk and the taller k nds should be placed towards the outside. In this way the bloom will be shown off to a greater advantage.

It is very important to avoid planting roses under the shade of trees. They need a warm, sunny exposure. Almost any good garden soil, free from standing water, will answer the purpose. If much clay be present, coal ashes, leached wood ashes, lime or sawdust may be added; if too sandy, clay muck or leaf mould will give it consistency.

In buying plants, do not be tempted with small greenhouse slips of a few weeks' growth, but rather spend a little more in purchasing p' ,,ts one or two years of age. They should be planted at a distance of from one to three feet apart, according to the size they may be expected ultimately to attain.

THE DAISY AS A WINDOW PLANT.

WHETHER generally known or not, the fact remains, that this dainty flower is one of the best of all plants for window culture, producing its pretty blossoms in great profusion for months in succession. It is well adapted to those rooms which have a temperature of from 40 to 60 degrees, and will endure a heavy frost, although, of course, with disastrous results, as it takes quite a time to recover from the effect of such rough usage. Many people have chambers heated only by a pipe passing through them, which, while it modifies the intense cold, does not render the apartments warm enough for the average house plant, such as the geranium, etc. To such individuals, if fond of house plants, the English daisy would prove a veritable treasure, since a very slight degree of heat enables it to produce its blossoms, which long remain perfect in a cool atmosphere. A box measuring about six by thirty-five inches, and perhaps four or five inches in depth, containing daisy plants, was kept winter before last in a room heated by a pipe passing through a small wheel register over a coal stove in the room below. Just after Easter I counted, if my memory is not treacherous, on the plants in this box about eighty buds and flowers. The same box filled with daisies last fall and kept in a warmer atmosphere was by the middle of December in full bloom, and investigation again revealed, oddly enough, the same number of flowers—eighty.—*Vick's Magazine.*

Forestry

THE WHITE POPLAR AND ITS USES.

THE wood of *Populus alba* is white, soft, light and very tough; it is used for bent ware, and made into various kinds of hoops for tubs, pails and ships' masts, etc.; the timber is sawn into boards and strips from three-eights to five-eights of an inch thick; it is then steeped and steamed to admit of its being bent with ease and without splitting. It is also made into corn shovels, bottoms of tubs, pails, corn and other measures, and also used in cheap cabinet work. I ought also to add that it is used extensively for railway carriage break blocks, on account, I suppose, of the non-combustible character of its wood, which will bear almost any amount of friction without igniting; and, moreover, it is very durable under friction. As a timber tree it is classed amongst inferior kinds, but it is the best of all the Poplars; at least, in some parts of the country it is preferred to any other kind. It is worth from 1s. to 1s. 6d. per foot, but the timber must be sound, clean and of large dimensions to realise this price; smaller-sized and ordinary quality trees sell at from 10d. to 1s. per foot. The Black Italian Poplar (*P. monilifera*) is used for similar purposes as the White Poplar or Abele, as it is also popularly called; it is, however, a coarser tree with a more branching habit, and, as a rule, it does not cut up so clean and free from small knots as the latter, neither is its wood so white. It is not in such request for bent ware as the Abele, and, in consequence, it is hardly worth so much per foot in the market. Both these Poplars are extremely fast growers in moist heavy land. The White Poplar exhibits a highly ornamental aspect in the landscape, particularly in spring, when the foliage is unfolding its whiteness, presenting a striking and pleasing contrast when associated with darker-foliaged trees. It is also a most distinct and effective tree, owing to the whiteness and smoothness of its stem, exhibiting a glittering appearance, particularly during sunshine, when its bark looks almost as bright as polished silver. The name White Poplar is applied to it on account of the white and woolly under-surface of the leaves; its bark, too, except when old, is white and very smooth. It is probably indigenous in Eastern and Southern England, readily propagating itself by means of seeds and suckers. —*O. in The Garden*

ERRORS IN GROUPING.

AT least one person in three of those who plant trees in groups or belts for ornamental purposes commit errors in consequence of not taking "one long look ahead." Probably, in many instances, mistakes are made in consequence of the ignorance of the persons directing the planting of the trees, as

they judge of the future size from the specimens in hand, the largest being selected for centres of groups or back-grounds of belts. A few years, however, are only required to develop and show errors, and the tall, slim Arbor-vitæ or Irish Juniper of to-day is soon over-topped by the stocky Norway or Hemlock Spruce. Planting ornamental trees is a work requiring some forethought, as it is not altogether for the present immediate effect that it is done, but for time far distant, and one needs to have the future form, size, and general appearance of the trees in his mind's eye at the beginning, if he would avoid making blunders that never can be corrected. It requires a practical and intimate acquaintance with all the trees used in forming groups, not only as they appear in their native forests, but when cultivated, for some show the effects of culture differently from others.—F.

THE SWEET CHESTNUT.

SIR:—Seeing an article on the Sweet Chestnut in October issue, the following may be interesting: "Rows of American Sweet Chestnuts one-year seedlings, set out in nursery rows fall of 1882 were thinned out, some in 1884 and 1885, but left quite thick, now touching each other in places. In the fall of 1886 good specimens of fruit were picked and in the fall of 1887 the trees were loaded. Trees have been cultivated more or less each year, no fertilizer, aside from common application. Spanish Chestnut, ten years planted, produces burrs but does not bring any fruit to perfection, owing to need of other tree or trees to fertilize the blossoms.

Rochester, N.Y. CHAS. A. GREEN.

✳ The Vegetable Garden ✳

THE CABBAGE APHIS.

NEXT to the cabbage worm, the worst insect enemy of the cabbage, is the aphis, or plant-louse, which is so often found upon the leaves and in the heads in great numbers. This is a small, bluish-white insect, that subsists upon the sap of the plant, and multiplies with great rapidity. Like most of the peculiar family to which it belongs, this insect has the power, not common among insects, of bringing forth living young, but with most of those that have been carefully studied there is in the fall a sexual generation by which the true eggs are laid, and in this egg state most of them pass the winter. But although the cabbage aphis has been known both in Europe and America for more than a century, the sexual generation has never heretofore been found, and entomologists did not know where or when the eggs were laid, nor how the insect passed the winter. Recent

investigations, however, carried on at the Ohio Experiment station by Dr. C. M. Weed, have shown conclusively that the sexual generation develop late in autumn on the cabbage, and that the eggs are laid on the cabbage leaves. The true male is a small winged creature, with a more slender body than the other winged forms. The egg-laying female has no wings, and is pale green in color.

The discovery of the fact that the insect passes the winter in the egg state on the cabbage leaves has an important economic bearing. It suggests, as one of the best ways of preventing the injuries of this pest, the destruction during winter of the old cabbage leaves with the eggs upon them, instead of leaving them undisturbed until spring, as is too often done.

STORING CABBAGE FOR WINTER.

A CORRESPONDENT of the *Country Gentleman* says: Every one thinks he can bury cabbages, and a good many of them *are* "buried" without any formality about it. Now, like everything else, there is a wrong and a right way of doing this. Cabbages, carefully stored, will not lose anything, and often gain much by being attended to in a proper manner. I prefer pulling and storing on the same day. The general practice is to pull, turn over with roots up and allow them time to "dry" before storing. Now a cabbage, if it lies a day in a bright sun with the roots up, loses considerable of its moisture by evaporation, leaving it in a wilted condition, and if kept long in this state is unfit for use. By pulling on a dry day, about the second week in November, and storing at once, they have not had enough of frost to injure them, nor are they allowed to get dry and lose their succulent condition.

When pulling them, all hard heads are selected and kept by themselves, to be packed in trenches with the leaves carefully tucked around them, and roots up, using for a covering finely pulverized soil packed closely around the heads. If the weather is warm at the time, only about an inch or two is put on, and more added as the severity of the weather demands more protection.

The loose heads are kept by themselves, and buried with roots down and heads up; in this condition they gain in solidity if not in size. They must never be allowed to get very dry, or have much of the soil shaken from the roots when planted. It takes a good deep furrow to get them suitably set in, with roots down, but it can mostly be done with the plow. Much of the covering can also be done by bringing the soil up against the plants with the plow, and then shovelling it around them as compactly as possible. If packed firmly they keep better and mice are less likely to injure them by burrowing around and cutting them. In order to get at them during winter, a covering of leaves or any rough material which will keep out the frost is necessary. When selecting a place to store cabbages, it is necessary to have ground where water does not stand, but passes off freely and quickly; stagnant water soon rots them, and they will not remain long in good condition where they are not kept dry.



The Canadian Horticulturist.

SUBSCRIPTION PRICE, $1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter are at our risk. Receipts will be acknowledged upon he address label.

IN explanation of the smaller size of this number, we desire to say that the additional pages will be given our readers in the January issue in the form of a complete index to this volume. This will, we trust, be found of great value, and will encourage the preservation of every number for binding at the end of each year. It is the only repository of information on Canadian Horticulture,and with the aid of our numerous correspondents, we hope to make each volume of greater practical value than the one preceding it.

THE ANNUAL AND WINTER MEETING of our Association has been fixed to begin on Tuesday evening, the 16th of December next, in the City Hall, Hamilton. That evening will be devoted to the hearing of the President's address, the election of officers, reports of committees and social conversation. The discussions upon the topics will be continued during Wednesday and Thursday, and will, no doubt, draw a large attendance, especially from the Niagara district. Everything favors a pleasant and profitable occasion. The city has given us the use of the finest city hall in Ontario; some members of the Ontario Government have signified their intention of paying us a visit; many of our best practical fruit growers are to take part with us, and, for many other reasons, we urge upon all readers of this notice to be in attendance, as far as circumstances will permit.

TAKE CARE OF THE WILD FLOWERS.

WE have received a pamphlet from Mr. Chas. S. Horn, Secretary of The American Wild Flower Club, Wilmington, Delaware, which we commend to all lovers of wild flowers in Ontario. It will be sent free to applicants who enclose a one cent stamp. It contains articles ably advocating attention to the preservation of our lovely wild flowers from the destruction which is now rapidly overtaking them, owing to the lack of appreciation of them by the general public. It aims at remedying this evil by stirring up local clubs in every part of the country who will receive and distribute literature upon the subject, hold local meetings where reports will be read on the local flora, and have addresses given upon the value and the beauty of our wild flowers and flowering shrubs, and thus, by every means possible, try to stir up a public sentiment in this direction.

To look upon many of our public roads, one would think that the inhabitants of our land were indeed utterly deficient in taste; for Ragweed, Canada thistle, Burdock and Mayweed grow rampant on every hand, and make the walks and borders present one continuous eyesore to the passer by. At times, it is true, there is a spasmodic effort made to tidy up, and the farmers turn out to do their road work by plowing up the borders and by making the whole as ugly as possible. Accustomed to destroy every shrub on the farm, even in the fence corners, what else is to be done on the road; and in consequence the Sweet Briar, the Golden Rod, the Elderberry and the Sumac, all alike fall victims to their ill-will. Shrubs which, if left to grow, would be an ornament to the highway.

There is no reason why our road sides,

especially where the barbarous custom of allowing cattle to run at large has been done away with, should not be one continuous park, with the borders growing up with a great variety of beautiful native trees and shrubs, among which our native wild flowers might be encouraged to grow.

SPRAYING FOR CURCULIO.

DR. CLARENCE WEED, of Ohio, has, during the last season, been making further experiments with Paris green for the curculio, and he is satisfied that it is a more complete preventure of injury than jarring the trees. He experimented upon an orchard of some 900 trees, jarring the trees in one-half the orchard in the usual way, and spraying the other half with poison, in the proportion of four ounces to fifty gallons of water. The first application was made immediately after the blossoms fell, and, on account of successive rains, repeated three or four times. On examination, in the month of July, not over three per cent. of the sprayed fruit was stung, while about four per cent of the fruit on the jarred trees was injured. A heavy crop of plums was harvested on both parts of the orchard, but the spraying was much less expensive than the jarring, and more effective.

SPRAYING FOR LEAF BLIGHT OF THE PEAR.

B. D. H., in the *Garden and Forest*, says that a large pear orchard, of 1,200 trees, was sprayed early in the season with carbonate of copper, and, as a result, the trees did not drop the foliage as many other trees did which were not sprayed, and the quality of the fruit was so much superior that the owner secured an unbroken list of first premiums at the state fair. We hope our readers will give this fungicide a thorough trial next spring, beginning very early, even before the blossoming period, with the first application, in order that the results may be clearly proved to the satisfaction of all. The writer has applied the copper carbonate both in suspension and dissolved in ammonia, on Flemish Beauty pear trees, Northern Spy apple trees and Bartlett pear trees, but not until the fruit was nearly the size of hickory nuts; and this was not a fair test. Still the results seemed to show in favor of those trees that were so treated, both in the brightness of the foliage and in the clearness of the fruit. We sincerely hope that it will prove a complete remedy for apple scab and leaf blight, the two most serious discouragements which the Canadian fruit grower has now to face.

NAMING COUNTRY ROADS.

IN Contra Costa county, California, a plan has been adopted for numbering country houses. It is called the "ten block system" and was originated by Mr. A. L. Bancroft, who has sent us a full account of it. The plan contemplates the division of every mile of roadway into ten equal parts, each of these divisions to be numbered, and every house is to bear the number of the block in which it is situated. If there are more than one house in a block these are distinguished by letters. The roads are to have names, tastefully painted upon guide boards, and thus a traveller will be materially helped in finding a house to which he has been directed.

The idea of naming all our public roads with suitable names painted on guide posts at the cross roads is surely most commendable, and this much might easily be carried out, even if our authorities are not prepared to follow out the plan in its details. Then, if every homestead were named by the owner, and the name placed at some prominent corner, the interest of a drive through the country would be much heightened, and great convenience afforded to strangers.

Open Letters

THE GOVERNOR WOOD CHERRY.

SIR,—I see in the July number of the HORTICULTURIST a print of the Governor Wood cherry, and you speak of it as a profitable variety. I find it an excellent cherry, but we can't keep off the cherry birds or waxwings as some call them. They come on here in flocks as soon as the fruit begin to color, about half its size, so that it is almost impossible to get a good cherry to eat. You surely must not be troubled much with the pest at Maplehurst, or what method do you take to preserve the fruit from their ravages? We may keep on shooting them, in a short time after they are as thick as ever. They are so bold they will actually come and pick the cherries on the same trees with us. I find the Rockport Biggareau a very fine, solid cherry, and at the time of their ripening we are not troubled with the birds.—W. HICK, *Goderich, Ont.*

THE PEAR BLIGHT.

SIR,—Alas! alas! The pear blight has been very bad this season. I have a lot of trees badly affected that never showed it the least before. The Beurre-Gifford that was always free from it before was very bad, the Clapp's Favorite was worse than any others, black all over, in fact, nearly every variety I have was affected more or less, even the Bartlett I found the Doyenne Bussock tolerably free, also the Duchess. The pears acted just like the apples, plenty of blossom but very little fruit.

We had a very good crop of raspberries and gooseberries, a fair crop of currants and grapes, also a fair crop of cherries and plums.—W. HICK, *Godcrich, Ont.*

Our Book Table

PUBLIC SCHOOL AGRICULTURE.

The First Principles of Agriculture, by Jas. Mills, President, and Thos. Shaw, Professor of Agriculture, Ontario Agricultural College, Guelph, Ont. Published by The J. E. Bryant Publishing Co, Toronto.

That a book covering the ground above described is sadly needed in Ontario, we think no rational person will deny. Why young men, going into other lines of life, should have so much more training for their work than farmers, has been for a long time an unsolved problem. This work has been undertaken by two men who are the leading educationists in our Province, in this line, and has been most ably executed. The first chapters have been very properly devoted to some scientific principles concerning the plant and the soil, which should be understood by all farmers; the rest of the book is largely taken up with practical instruction upon such important subjects as rotation of crops, management of the various crops, feeding stock, care and management of horses, cattle, sheep and swine, breeds of live stock, dairying, etc. The amount of ignorance characterizing many Canadian farmers on these subjects is surprising, and, it is to be hoped, will give place to a different state of affairs, through the agency of this book, and the useful work of Farmers' Institutes.

REPORTS.

The Transactions of the Indiana Horticultural Society for 1889, C. M. Hobbs, Bridgeport, Secretary. *Twenty-second Annual Report of the Missouri State Horticultural Society, for* 1889, L. A. Goodman, Westport, Secretary. *Transactions of the Main State Pomological Society for the year* 1889, D. H. Knowlton, Farmington, Secretary.

Transactions of the Massachusetts Horticultural Society for the year 1890. Robert Manning, Boston, Secretary.

MAGAZINES.

The Farmers' Advocate, a monthly magazine published by Wm. Weld. London, Ont., $1.00 per annum. This journal has been established over twenty-five years, and has always ably advocated the interests of the farmer. It has a department for the Farm, Stock, Orchard, Garden, Dairy, Veterinary and Household. The immense amount of matter given yearly in its columns, for the small amount of the subscription price, can only be accounted for by the large size of its subscription list.

CATALOGUES.

Autumn Bulb Catalogue, 1890. Peter Henderson & Co., 35 Cortlandt Street, New York city.

Our Markets

MONTREAL.

Apples.—The shipments of apples from Atlantic ports last week were 51,820 bbls., against 45,872 bbls. for the week previous. The shipments up to November 15th, the close of last week, were 192,572 bbls., against 304,579 bbls. for the same period last year, showing a decrease of 112,007 bbls. This week's shipments are expected to be heavy. The following were last week's shipments :—

	Liverpool.	London.	Glasgow.
Montreal,...	13,249	14,278	9,616
New York..	4,486	40	529
Boston.....	1,084		
Halifax.....		8,538	

The market during the past week has been steady, with sales of car lots of No. 1 winter fruit at $3.50 to $4. The sale was also made of two car loads of choice winter varieties at a point east of Toronto at $3.50 f.o.b.. Fameuse are a drug on this market, with sales of seconds as low as $1.50 to $2. Real fancy fruit, however, has sold at $4. Cable advices from Liverpool are easier and lower, one report quoting Greenings, Russets and Baldwins 21s., Northern Spies 18s. 6d. to 20s., and Kings 30s. Another cable quotes Liverpool steady at 22s. to 28s. Glasgow cables are firmer.

Evaporated Apples.—Although the stock is light yet the high prices curtail consumption, and the market may be quoted dull at 12c. to 13c. per lb. Some look for still lower prices

Dried Apples.—The sale of a lot of thirty packages was made in the West at equal to 8c. per lb. here, and we quote 7c. to 9c.—*Montreal Produce Bulletin.*

LIVERPOOL.

November 15, 1890.

Canadian Apples.—20 ounce, 20s. to 27s.; Colvert, 16s. 6d. to 20s. ; Kings, 24s. to 30s.; Greenings, 16s. to 23s. 6d ; Spy, 18s. to 23s.; Russets, 16s. 9d. to 25s. 6d. ; Baldwins, 20s. to 25s. ; Baldwins, 2nds, 16s. to 19s. 6d.—MESSRS. WOODALL & Co., *Liverpool.*

THE ANNUAL AND WINTER MEETING

OF THE

Ontario Fruit Growers' Association

Will be held in the CITY HALL, HAMILTON, on

Tuesday, Wednesday and Thursday, December 16th, 17th and 18th, 1890.

The public generally, ladies or gentlemen, who have an interest the cultivation of fruits or flowers, are invited to attend the sessions of this Association at Hamilton, especially those of Wednesday and Thursday.

Standard Certificates should be purchased of the R.R. agent at the starting point, which will entitle the holder to return at reduced fare.

The Royal Hotel will entertain those in attendance at $2.50 per day, and the **American Hotel** at $1.50 per day.

A Fruit Exhibit will be provided for in one of the committee rooms, and to this every person will be permitted to contribute samples of fruit. These will be examined by the fruit committee and reported upon.

Members' Subscriptions will be received at any time by the secretary, entitling the payer to receive all the publications of the society.

The Question Drawer will be in charge of the secretary, and to it all questions are handed in, to be brought up for reply at convenient seasons.

The following visitors are expected to be present sometime during the session :—D. McLellan, Mayor of the city of Hamilton ; the Hon. J. M. Gibson, Provincial Secretary ; N. W. Awrey, M.P. for Wentworth, President of the Central Farmers' Institute ; the Hon. John Dryden, Minister of Agriculture ; Wm. Saunders, Director of the Experimental farms of the Dominion of Canada ; S. D. Willard, Vice-President of the Western New York Horticultural Society ; A. Blue, Deputy Minister of Agriculture, and others.

PROGRAMME—Tuesday, December 16th, 1890.

Meeting of Directors in committee room, 7 p.m. **Public Meeting,** 8 p.m. in the city council chamber. **Welcome Address** by D. McLellan, Mayor of the city of Hamilton. **Reply** by the president. **Minutes** of the last

annual meeting. **Directors' Report. Treasurer's Report. President's Address. Election of Officers,** social conversation and introductions. **Report** of New Fruits by the secretary. **Appointment of Committees,** (1) Fruit Exhibit, (2) on Legislation, (3) on New Fruits. **Miscellaneous business.**

Wednesday Morning, December 17th.

10 o'clock. **The District Fruit List,** Thomas Beall, chairman of the committee. Appointment of committees to carry out fruit catalogue on pears, grapes, peaches, cherries, etc.

Horticultural Institutes, the Secretary. **Our Fruit Markets,** A. H. Pettit, Grimsby.

Questions.—(1) Would it be wise to seek legislation seeking uniformity in the size and shape of fruit packages? Ought not grape baskets, *e.g.*, to hold out the full weight of five or ten pounds, as the case may be, and the peach basket be kept to the full number of quarts for which it is sold? Should not all fruit be sold by the pound, and every package marked with the number of pounds it contains?

(2) Which is the best remedy for the curculio, spraying or jarring in the trees?

(3) Does it pay to grow the Kieffer pear?

(4) Which pays better, sweet or sour cherries? What varieties of the Morello class are to be most commended?

Wednesday Afternoon.

2 p.m. **Question Drawer.**

The Carrying of our Domestic Fruits, E. D. Smith, Winona.

Fruit Growing of 1889 and 1890 in Western New York, S. D. Willard, Geneva, N.Y.

Addresses by visitors, Hon. John Dryden, Hon. J. M. Gibson and others.

Experimental Horticulture in various parts of our Dominion, Wm. Saunders, Director of the Experimental Farms of Canada.

Questions.—(5) Would it be well to ask the Department of Agriculture to make some provision for a register of all new fruits which receive the commendation of this association, with drawings of the same accompanied by a full and accurate description?

(6) In connection with this register, would it not be wise to ask the department to provide for the granting of a certificate of ownership to the introducer of such commended fruit or fruits for a certain length of time, on payment of a registration fee of say $10.00? All such details, including the engravings and description to aid in identifying the plant, and the names of persons to whom any such certificates are granted during the year, to be entered as an appendix to our annual report.

Wednesday Evening.

8 o'clock. **Question Drawer.**

Wild Flowers, their Preservation and Dissemination, J. A. Morton, Wingham, Ont.

The Rose Garden, Mr. Webster, of Webster Bros., Florists, Hamilton.

The Commercial Fruit Growers' Outlook, D. W. Beadle, St. Catharines, Ont.

Questions.—(7) Will it pay to export summer and fall apples; and if so, what varieties?

(8) Can grapes, peaches, pears or quinces be exported with profit? How should they be packed?

(9) Would it be wise for the Department of Agriculture of Ontario to establish a local experiment station, under the charge of the Ontario Fruit Growers' Association with the especial object of testing new fruits originating in Ontario, and the keeping of living samples to aid in identification of them in connection with the proposed plant register?

(10) Is the Niagara grape more productive than the Concord?

(11) Which red grape has paid the grower best during the season of 1890?

Thursday Morning.

10 o'clock. **Question Drawer.**

Protection of Tender Plants Requiring the Heat of our Canadian Summer to Ripen their Fruit, P. E. Bucke, Ottawa.

Winter Apples, Still one other Variety Needed, D. Nichol, Cataraqui, Ont.

Hardy Ornamental Trees and Shrubs for the Lawn, Jas. Goldie, Guelph, Ont.

Questions.—(10) Does it pay the fruit grower to make his own commercial fertilizer, providing he can buy wood ashes at ten cents a bushel, delivered? What other fertilizer should be mixed with wood ashes to make a complete fertilizer? Are wood ashes suitable to all kinds of soil?

Thursday Afternoon.

2 o'clock. **Question Drawer.**

Hardy Apples for the North and for Export, G. C. Caston, Craighurst, Ont.

The Fruit Grower's Packing House, Geo. Cline, Winona, Ont.

Grape Growing in Ontario, M. Pettit, Winona, Ont.

Questions.—(12) Which is the better mode of selling fruit, through agents or direct to retailers? Is the commission business worked as it should be in order to give the grower a fair price for his goods, considering the high prices which are paid by consumers in our near city markets?

(13) Is the present accommodation afforded by the railway and express companies equal to the needs of shippers to our home markets?

(14) What is the value per acre of an apple orchard at the age of one, ten and twenty years, respectively, supposing the ground before planting to be worth $100 per acre? Could not this association appoint a committee to prepare a table of such values and to present it at our next meeting?

A. M. SMITH, *President.* **L. WOOLVERTON,** *Secretary.*

Biological
& Medical
Serials

STORAGE